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HYDROCYANIC ACID GAS.

ITS PRACTICAL USE AS A ROUTINE FUMIGANT.

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The toxicity of hydrocyanic acid gas to all animal life and the effectiveness of this gas in destroying vermin are well known, but the minimum dilution that can be depended upon to accomplish satisfactorily the object sought has not been fully determined.

NOTE.—Fumigation with hydrocyanic acid gas should be carried out only by responsible persons, thoroughly familiar with the nature of the reagents used and their poisonous properties and the danger to man and animals of inhaling even comparatively small quantities of the gas during or after fumigation.

Because of the dangers associated with fumigation with hydrocyanic acid gas, the Surgeon General has issued the following instructions to officers of the Public Health Service to be followed in the fumigation of vessels:

When performing the cyanide fumigation of compartments you will be guided by the following minimum requirements:

1. On account of the great danger to human life from hydrocyanic acid gas, specific arrangements should be made for the disposition of the crew during the fumigation process, especially if one or two compartments of a vessel are to be treated. A written statement must be obtained from the captain or first officer of the vessel that the latter is ready for fumigation, and that every member of the crew has been accounted for, as not being in the vessel or else not exposed to the fumes of the gas. Persons in one compartment have been killed by fumes escaping from another compartment undergoing fumigation.

2. Not less than 5 ounces of potassium cyanide or $3\frac{1}{2}$ ounces of sodium cyanide shall be used to each 1,000 cubic feet of space, inclusive of that occupied by cargo.

3. To each ounce of potassium cyanide 1 fluid ounce of commercial sulphuric acid 66B and $2\frac{1}{2}$ fluid ounces of water shall be used.

4. To each ounce of sodium cyanide $1\frac{1}{2}$ fluid ounces of commercial sulphuric acid 66B and 2 fluid ounces of water shall be used.

5. All ingredients shall be weighed and mixed immediately prior to each fumigation.

6. All parts of the vessel shall be placed under fumigation simultaneously except such compartments as may not require fumigation in the opinion of a representative of the United States Public Health Service. (Review par. 1.)

7. All compartments placed under fumigation shall be kept closed for not less than one hour.

8. The hatches of 'tween decks and the doors of subcompartments are to be opened prior to fumigation, and the barrel or other generator is to be placed so as to secure the most rapid and efficient diffusion of the gas.

9. All work is to be done under the supervision and to the satisfaction of the medical officer in charge, United States Public Health Service, or his representative.—EDITOR.

One ounce of potassium cyanide per 100 cubic feet of space is the (standard) amount generally used, and is the quantity advocated by Surg. Norman Roberts.¹ The expensiveness of the reagents and the danger to human life have been considered sufficient to preclude the common use of this gas for fumigation.

The relatively high cost of potassium cyanide and sulphuric acid (more especially where the purified products are used) has been largely responsible for the limited use of hydrocyanic acid gas in fumigating ships.

Obviously, the smaller the amount of hydrocyanic acid gas used compatible with effectiveness, the wider the range of its applicability from an economic standpoint.

If the percentage of gas could be reduced to a sufficiently low degree to make the price of the material no greater than that of other fumigants, at the same time retaining its potency for the destruction of vermin, the chief objection to the widespread use of hydrocyanic acid gas would be removed.

In order to clear up this question, a series of practical experiments was determined upon and carried into effect.

In addition to the consideration of the main point involved, study was given several other elements entering into cyanide fumigation.

These were as follows:

First. The relative penetrating power of cyanide gas in comparison with other fumigants most generally in use, more especially sulphur dioxide.

Second. The least duration of exposure necessary to assure the destruction of rodents and rodent parasites under the natural conditions obtaining in ships and in buildings.

Third. The relative cost of cyanide fumigation in comparison with that of sulphur dioxide and carbon monoxide (funnel gas).

Fourth. The danger to human life in performing cyanide fumigation.

Comparative Values of Various Fumigants.

A comparison of the three most frequently used fumigants, sulphur dioxide, carbon monoxide, and hydrocyanic acid gas, reveals many facts favoring the use of hydrocyanic acid gas as a routine fumigant in both ships and buildings for the destruction of rodents.

Sulphur dioxide, while fairly effective, is not very penetrating. It diffuses very poorly, and in actual practice it has seemed that air pockets in articles of cargo or between packages will afford to rats a sufficient protection against the effect of the sulphur fumes.

¹ Norman Roberts, surgeon, U. S. Public Health Service. Public Health Reports, Dec. 11, 1914, vol. 29, No. 50.

Grubbs's¹ observations along this line were confirmed by the experiments of the writers. Its use is highly destructive to various articles, and its generation requires cumbersome apparatus and the expenditure of considerable time. Being less toxic than hydrocyanic acid gas or carbon monoxide, sulphur dioxide requires a much longer exposure. The exposure to sulphur fumes requires from 6 to 12 hours in contrast to less than 1 hour when hydrocyanic acid gas is used. The lack of diffusive qualities limits the use of sulphur dioxide almost exclusively to the fumigation of vessels in ballast.

Carbon monoxide, while highly efficient, requires such complicated apparatus for its generation that the use of this gas as a fumigant is restricted to quarantine stations or other localities where proper care and attention can be given to the apparatus required. Moreover, this gas is valueless for the destruction of the lower forms of animal life, fleas, flies, and mosquitoes.

To the disadvantages of both of these fumigants must be added the danger of fire, a necessary attendant to the generation of either of these gases.

Hydrocyanic acid gas is the most penetrating and the most toxic of these fumigants. It is easily and quickly generated, requires very little apparatus, is not destructive to inanimate objects, and in the hands of experienced operators its use is not attended by more danger to persons than is the use of carbon monoxide.

The following experiments were performed, part of them on ships, the others in a sealed room on land:

Experiment No. 1.

Two rats in separate wire cages were placed near the closed port-holes in a steel-walled room of a ship. Part of this stateroom was occupied by bunks and sailors' clothing and equipment. The gas was generated from one container placed near the center of the room. One cage was lightly covered with a piece of white-duck cloth. Potassium cyanide in lump form, wrapped in gauze, was dropped by hand into the sulphuric acid.

Capacity of the room, approximately.....	cubic feet..	1,395
Amount of lump commercial potassium cyanide.....	ounces..	14
Amount of 66B sulphuric acid.....	do.....	22

Effect of gas on rat No. 1 noticed in 5½ minutes.

Effect of gas on rat No. 2 noticed in 7 minutes.

Respiratory efforts of rat No. 1 ceased in 33 minutes.

Respiratory efforts of rat No. 2 ceased in 41 minutes.

Strength of gas, 1 ounce cyanide per 100 cubic feet of space.

¹ S. B. Grubbs, surgeon, and B. E. Holsendorf, pharmacist, U. S. Public Health Service. Public Health Reports, June 20, 1913, vol. 28, No. 25.

Experiment No. 2.

One rat in a wire cage was placed in the hold of a ship filled with miscellaneous cargo. Capacity of hold when empty, 122,000 cubic feet.

	Pounds.
Amount of commercial potassium cyanide.....	54
Amount of 66B sulphuric acid.....	54
Strength of gas, 0.708 ounces of cyanide per 100 cubic feet of space.	

The rat was dead when removed from the hold after 1 hour and 30 minutes' exposure.

Experiment No. 3.

One rat in a wire cage was placed in the hold of a ship, partly filled with miscellaneous cargo, immediately over the cyanide generator. Capacity of hold when empty, 65,000 cubic feet.

	Pounds.
Amount of commercial potassium cyanide.....	36
Amount of 66B sulphuric acid.....	36
Strength of gas, 0.886 ounce of cyanide per 100 cubic feet space.	

The rat was dead when removed from the hold after a period of 10 minutes' exposure.

Experiment No. 4.

One rat in a wire cage was placed in the hold of a ship filled with miscellaneous cargo. The rat was placed as far as possible from the generator, the gas having to pass through the intervening bulk of cargo before reaching the animal.

Capacity of hold when empty.....	cubic feet..	122,000
Amount of commercial potassium.....	pounds..	27
Amount of 66B sulphuric acid.....	do.....	27
Strength of gas, 0.354 ounces of cyanide per 100 cubic feet of space.		

The rat was removed after 10 minutes' exposure. Apparently it was not affected. No odor of cyanide could be detected and the rat was immediately replaced. At the end of 20 minutes the rat was again withdrawn and found still breathing, but apparently beyond the power of voluntary movement. The odor of cyanide was very noticeable. This rat revived at the end of 30 minutes.

Experiment No. 5.

Two rats in a wire cage were placed in the hold of a ship filled with miscellaneous cargo. The cage was completely covered with sacks of potatoes and onions to afford the maximum amount of protection to the rodents against exposure to the gas.

Capacity of hold when empty.....	cubic feet..	122,000
Amount of commercial potassium cyanide.....	pounds..	27
Amount of 66B sulphuric acid.....	do.....	27
Strength of gas, 0.354 ounce of cyanide per 100 cubic feet of space.		

The rats were withdrawn, dead, at the end of one hour's exposure. From their appearance it was judged they had succumbed during the early part of the experiment.

Two other rats escaped from a cage which was being lowered into the hold of the vessel some time previous to generation of gas. Subsequently they were both found dead amongst the cargo where they had sought refuge.

The following experiments were performed in a room, the floor, ceiling, and walls and all openings of which had been thoroughly sealed.

Experiment No. 6.

Two rats in separate wire cages were placed in the room on chairs near the window, where every action could be watched. The gas was generated from a single container placed near the center of the room. The cyanide used was in lump form, wrapped in cheesecloth, and dropped into the acid by hand.

Capacity of the room, 1,269 cubic feet.

Amount of chemically pure potassium cyanide in lump form, 12.69 ounces.

Amount of sulphuric acid, specific gravity 1.84, 12.69 ounces.

Strength of gas, 1 ounce of cyanide per 100 cubic feet of space.

Effects of gas on rat No. 1 noticed in 2½ minutes.

Effects of gas on rat No. 2 noticed in 3 minutes.

Respiratory efforts of rat No. 1 ceased in 10 minutes.

Respiratory efforts of rat No. 2 ceased in 10 minutes.

Full action of acid on cyanide was not complete until five minutes after death of the rats.

Experiment No. 7.

Two rats in separate wire cages were used.

	Ounces.
Amount of powdered chemically pure potassium cyanide.....	12.69
Amount of 66B sulphuric acid.....	12.69

Strength of gas, 1 ounce of cyanide per 100 cubic feet of space.

Effects of gas on rat No. 1 noticed in one minute.

Effects of gas on rat No. 2 noticed in one minute.

Respiratory efforts of rat No. 1 ceased in five minutes.

Respiratory efforts of rat No. 2 ceased in five minutes.

Experiment No. 8.

Three rats in separate wire cages were placed in the room. One of these, a banana rat, carried nine young apparently less than a week old.

	Ounces.
Amount of powdered chemically pure potassium cyanide.....	6.34
Amount of sulphuric acid, specific gravity, 1.84.....	6.34

Strength of gas, 0.5 ounce of cyanide per 100 cubic feet of space.

Effects of gas on banana rat noticed in six minutes.

Effects of gas on rat No. 2 noticed in six minutes.

Effects of gas on rat No. 3 noticed in eight minutes.

Respiratory efforts of banana rat ceased in 11 minutes.

Respiratory efforts of rat No. 2 ceased in 10 minutes.

Respiratory efforts of rat No. 3 ceased in 12 minutes.

The powdered cyanide was inclosed in a double thickness of cheese-cloth.

Experiment No. 9.

Four rats were used. Nos. 1 and 2 were placed in separate wire cages; Nos. 3 and 4 turned loose in the room.

	Ounces.
Amount of powdered commercial potassium cyanide-----	5
Amount of sulphuric acid specific gravity 1.84-----	5

Strength of gas, 0.3931 ounce of cyanide per 100 cubic feet of space.

Effects of gas on rat No. 1 noticed in $1\frac{1}{2}$ minutes.

Effects of gas on rat No. 2 noticed in $1\frac{1}{2}$ minutes.

Effects of gas on rat No. 3 noticed in 4 minutes.

Effects of gas on rat No. 4 noticed in $4\frac{1}{2}$ minutes.

Respiratory efforts of rat No. 1 ceased in 7 minutes.

Respiratory efforts of rat No. 2 ceased in 9 minutes.

Exact time of death of rats Nos. 3 and 4 could not be ascertained, as they ran into a corner of the room where they could not be observed. Upon subsequent examination of the room they were found dead.

Experiment No. 10.

Two rats were used, No. 1 in a wire cage, No. 2 loose on the floor.

	Ounces.
Amount of powdered commercial potassium cyanide-----	2
Amount of sulphuric acid specific gravity 1.84-----	2

Strength of gas, 0.1576 ounce of cyanide per 100 cubic feet of space.

Effects of gas on rat No. 1 noticed in $7\frac{1}{2}$ minutes.

Effects of gas on rat No. 2 noticed in $1\frac{1}{2}$ minutes.

Respiratory efforts of rat No. 1 ceased in 13 minutes.

Respiratory efforts of rat No. 2 ceased in $4\frac{1}{2}$ minutes.

Experiment No. 11.

Four rats were placed at varying levels above the floor—No. 1 in a cage near the ceiling, directly over the generator; No. 2 in a cage on a trestle at the side of the room $2\frac{1}{2}$ feet above the floor; Nos. 3 and 4 loose on the floor. On the trestle was placed a tin gallon measure containing 10 dog fleas (*Ctenocephalus canis*). In the bottom of this container was an inch of fine sand to afford protection for the fleas against the gas, should they be inclined to burrow therein. The floor was strewn with straw, sacks, and boards fastened together in the form of pipe casings. One of the loose rats was placed in a

box of this sort, both ends of which were tightly sealed with bundles of straw.

	Ounces.
Amount of powdered chemically pure potassium cyanide.....	6
Amount of sulphuric acid, specific gravity 1.84.....	6

Strength of gas, 0.4727 ounce of cyanide per 100 cubic feet of space.

Effects of gas on rat No. 1 noticed immediately.

Effects of gas on rat No. 2 noticed in six and one-half minutes.

Effects of gas on rats Nos. 3 and 4 could not be determined, as they were hidden under refuse on the floor.

Respiratory efforts of rat No. 1 ceased in one minute.

Respiratory efforts of rat No. 2 ceased in 14 minutes.

Both loose rats, as well as all fleas, were dead when removed after one hour's exposure.

Experiment No. 12.

Twelve young rats were released in the room, the floor of which had been strewn with straw, bags, boxes, etc. Twenty-four-hour Agar slant cultures of *B. diphtheria*, *Staphylococcus*, *B. typhosis* were also exposed to the gas for one hour.

	Ounces.
Amount of powdered chemically pure potassium cyanide.....	6
Amount of sulphuric acid, specific gravity 1.84.....	6

Strength of gas, 0.4727 ounce of cyanide per 100 cubic feet of space.

The rats were all dead after one hour's exposure. Some of them were found under the various articles of dunnage in different parts of the room. No effects on the cultures could be noticed.

Experiment No. 13.

A large quantity of miscellaneous dunnage consisting of bales of hay, straw, boxes, bags, pipe casing, boards, etc., was piled in the room. One rat was released in the room and cultures of *B. diphtheria*, *B. typhosis* and *Staphylococcus* were exposed to the gas.

	Ounces.
Amount of powdered chemically pure potassium cyanide.....	6
Amount of sulphuric acid specific gravity 1.84.....	6

Strength of gas, 0.4727 ounce of cyanide per 100 cubic feet of space.

After one hour's exposure the rat was found dead under bales of hay and straw. The cultures were not affected, with the exception of one of the *Staphylococcus* which was sterilized.

Experiment No. 14.

Five rats were liberated in the room in which had been placed a quantity of miscellaneous dunnage consisting of boxes and boards nailed in the form of pipe casings, together with a quantity of excelsior and bags filled with paper to simulate as closely as possible conditions ordinarily found in the hold of vessels. One rat was placed in a length of stovepipe, both ends of which were closed

with bundles of excelsior. Sufficient sulphur was burned to generate 4.34 per cent of sulphur dioxide gas in the room, which was closed for 12 hours. When opened all rats were found dead.

Experiment No. 15.

Nineteen rats were liberated in the room arranged as in the previous experiment, and one rat was placed in a length of iron stove-pipe closed at each end with bundles of excelsior. In order that the rats might fully adapt themselves to conditions, some of them were placed in the room 36 hours before, others 24 hours before, and others immediately before the experiment was begun.

Sufficient sulphur was burned to generate over 3 per cent of sulphur dioxide gas and the room kept closed for six hours. When opened, 14 rats were found dead, while 6 were found alive and apparently unaffected. These latter had sought refuge under various articles of dunnage, and probably were protected by air pockets.

Experiment No. 16.

Fifteen rats were placed in the room and liberated. Six and one-half pounds of sulphur were burned. This was sufficient to generate 5.12 per cent of sulphur dioxide gas in the room.

After 5 hours and 45 minutes exposure, all rats were found dead. Some of these appeared still limp, as if they had just succumbed.

Experiment No. 17.

Five rats were liberated in the room and immediately took refuge under the dunnage. Sufficient sulphur was then burned to generate 4.34 per cent sulphur dioxide gas in the room, which was allowed to remain closed for four hours. When opened, all rats were dead. Two of them were found under the dunnage.

Experiment No. 18.

For this experiment six heavy galvanized cans 20 inches in diameter and 24 inches in depth, such as are ordinarily used for garbage receptacles, were selected.

A rat was placed in each can and the tops were covered with from one to six layers of cheesecloth. These cans were then exposed to 4 per cent sulphur dioxide gas for a period of six hours, after which the rats were removed and examined and the cans aired.

The experiment was immediately duplicated in exact detail, using cyanide gas instead of sulphur and replacing with a live one the dead rat killed by sulphur fumes in container No. 1. This gas was generated by using one-half ounce of potassium cyanide to each 100 cubic feet of space, as follows:

Potassium cyanide, 99 per cent.....	ounces..	6½
Sulphuric acid, 93 per cent.....	fluid ounces..	6½

The results obtained from this experiment are given in the following table:

Container.	Number of rats.	Cheesecloth protection.	Result with 4 per cent sulphur dioxide for six hours.	Result with $\frac{1}{2}$ ounce KCN per 100 cubic feet for $\frac{1}{2}$ hour.
No. 1.....	1	One-ply.....	Dead.....	Dead.
No. 2.....	1	Two-ply.....	Alive.....	Do.
No. 3.....	1	Three-ply.....	Unaffected.....	Do.
No. 4.....	1	Four-ply.....	do.....	Do.
No. 5.....	1	Five-ply.....	do.....	Do.
No. 6.....	1	Six-ply.....	do.....	Do.

Experiment No. 19.

This experiment was carried out in order to determine approximately the relative danger incurred in opening and entering spaces fumigated with hydrocyanic-acid gas.

For this purpose the forecabin and hold, and the superstructure (saloon and communicating staterooms) of a vessel were selected. One-half ounce of potassium cyanide per 100 cubic feet of space was used, and the compartments were allowed to remain closed for one hour.

The ventilation of the superstructure was rapidly and effectively secured by throwing open four doors. Upon the completion of the fumigation this was done and a rat immediately placed within. It was very shortly overcome.

Ten minutes later, however, the saloon and attached cabins were entered. No odor of cyanide gas was noticed and the men entering the place were unaffected.

Hold.—This space occupied the depth of two decks, was 37,500 cubic feet in capacity, and was ventilated through two hatches. Upon completion of the fumigation one of these was thrown open and rats were lowered at 5-minute intervals for 15 minutes. In this manner three rats were overcome by the gas, but in each instance were resuscitated. Both hatches were then removed. Fifteen minutes later a rat was lowered into the hold, but showed no ill effects.

Forecabin.—This compartment was of approximately 6,000 cubic feet capacity, and ventilated only through a small entrance door. Forty minutes after throwing open this door hydrocyanic-acid gas was present in sufficient strength to overcome rats, but did not affect two men who entered for a short time. The rooms were then entered and six portholes opened, and the chambers sufficiently cleared of gas in five minutes to permit rats being placed in them without showing any ill effects.

Summary.

(1) It early became evident that the use of 10 ounces of potassium cyanide per 1,000 cubic feet of space was unnecessary for efficient fumigation. As rapid and as effective results could be obtained by the use of much smaller quantities of the reagents. As a matter of fact, it was noticed that where lump potassium cyanide wrapped in cheesecloth or in other container was used, so that chemical action was retarded, the rats were dead before full chemical action had taken place. Several experiments therefore were performed with decreasing amounts of chemicals, the results of which indicated that the use of 5 ounces of potassium cyanide per 1,000 cubic feet of space was as effective as the use of 10 ounces per 1,000 cubic feet of space.

(2) It was clearly demonstrated that the quickest and best results were obtained by the use of powdered potassium cyanide, the chemical action being much facilitated and more rapidly completed. In several cases where such potassium cyanide was used the rodents were overcome immediately and seemingly were incapable of making any effort to escape.

(3) Two grades of potassium cyanide and sulphuric acid were used in these experiments, namely, chemically pure potassium cyanide and sulphuric acid (sp. g. 1.84) and commercial cyanide and sulphuric acid (66B). No material difference could be determined in the results obtained.

(4) Attempts to destroy bacteria with this fumigant were unsuccessful.

(5) It was noticed that where the rodents were allowed to run at liberty within the room during fumigation, and in the cases of the more active ones in cages, the effects of the gas were earlier apparent and more marked, and the rodents succumbed more quickly. Any physical efforts of the rodents seemed to hasten the effects of the gas, presumably by increased respiratory action.

(6) The cyanide gas apparently diffuses very rapidly, rising first to the top of a closed space, thence following along the walls to the floor, and finally reaching the center of the space. The progress of the gas during these experiments could very often be followed by observing its effects on fleas, mosquitoes, gnats, ants, etc., along the walls and floor of the room. From experiment No. 18 it is evident that cyanide gas is much more penetrating than sulphur dioxide, and is correspondingly to be preferred when fumigating ships loaded with cargo.

(7) While from the experiments, and more especially experiment No. 18 (in which unusual protection was afforded the test rats), it would seem that one-half hour is sufficient exposure when cyanide gas is used as the fumigant, the increasing of this period to one hour ought to suffice even when unusually large spaces are fumigated.

(8) The element of danger to human life is more or less speculative, and will vary according to the care exercised in performing the fumigation. In all the experiments no effect was noticed by those men who dropped the cyanide into the acid mixture. In the fumigation of a large warehouse the operators had to travel 100 feet from the container to the exit. This was accomplished without any noticeable effect.

In performing cyanide fumigation in ships' holds the dumping fixture operated by a rope, as indicated in the illustration on page 3549, will remove all possible danger to the operator. Ordinary speed in departing from the room will likewise safeguard the operator in fumigations on land where the cyanide is dropped by hand.

The danger in opening doors and windows or the hatches of vessels is likewise speculative, but in all these experiments and in several other instances no ill effect was ever noticed by those throwing open the doors and windows.

The room used for experiments could be entered without noticeable effect upon the operator five minutes after the door and window were thrown open. The size of the space fumigated and the draft resulting from natural air currents after the doors and windows have been opened have to be considered.

In experiment No. 19 it seemed evident that holds of ships would not retain the cyanide fumes so as to be dangerous to life 30 minutes after the hatchways were removed.

An accident on board a ship at New Orleans throws further light on this subject. This occurred during the fumigation of a superstructure on board. The room had a capacity of approximately 1,000 cubic feet. The cyanide was placed in the acid solution and the doorway sealed. A drunken sailor coming aboard threw open the door and entered. How long the man was exposed is uncertain. The exposure was not more than 15 minutes, and possibly only 5 minutes in duration. When discovered he was lying on the floor beside the cyanide container. It was likewise uncertain whether he had been overcome by the gas or had lain down in a drunken stupor. When removed from the room he was resuscitated.

The writers conclude that in any space where a circulation of natural air currents can be obtained there is no danger to men entering a place fumigated by cyanide gas 30 minutes after apertures have been opened. This interval of time is shorter than in sulphur fumigations, where the fumes are not sufficiently cleared from ships' holds for men to enter for varying periods of from one to three hours.

(9) The cost of cyanide fumigation, when the chemical is used in the proportion of 10 ounces of potassium cyanide per 1,000 cubic feet of space, is somewhat in excess of sulphur fumigation (4 per cent gas), the former costing from \$17 to \$25 per 100,000 cubic feet

of space, depending upon the market value of potassium cyanide, and the latter \$13 per 100,000 cubic feet of space.

By reducing the amount of cyanide to 5 ounces per 1,000 cubic feet the cost per 100,000 cubic feet would vary from \$8.50 to \$12.50 in comparison with the cost of sulphur fumigation, i. e., \$13 per 100,000 cubic feet of space.

From this it can be seen that effective cyanide fumigation can be performed at less expense for the chemicals alone than the sulphur fumigation prescribed in the quarantine regulations of the United States Treasury Department. The cost of equipment materially increases the disparity in expense.

(10) An itemized estimate of the comparative cost of sulphur and cyanide fumigation based on present market values is as follows:

With potassium cyanide at \$0.25 per pound:

Potassium cyanide, 5 ounces, at \$0.015625	\$0.078125
Sulphuric acid, commercial, 8 ounces, at \$0.00084375	.00675
Total	.084875

With potassium cyanide at \$0.36 per pound:

Potassium cyanide, 5 ounces, at \$0.0225	\$0.1125
Sulphuric acid, commercial, 8 ounces, at \$0.00084375	.00675
Total	.11925

The cost of fumigating like space with sulphur dioxide:

Sulphur, 4 pounds, at \$0.022	\$0.088
Methyl alcohol	.02
Total	.108

Sodium cyanide 126-133 per cent contains from one-fourth to one-third more available hydrocyanic acid gas than equal weight of potassium cyanide 97.99 per cent.¹ In fumigating, therefore, 3½ ounces of sodium cyanide is the equivalent of 5 ounces of potassium cyanide. The price of sodium cyanide at present is \$0.24 per pound. The cost of fumigating 1,000 cubic feet of space with this material, therefore, is:

Sodium cyanide, 3½ ounces, at \$0.015	\$0.05625
Sulphuric acid, commercial, 5.62 ounces, at \$0.00084375	.00474
Total	.06099

From this it will readily be seen that the cost of fumigating a given space with hydrocyanic acid gas compares very favorably with that of fumigating the same space with sulphur dioxide.

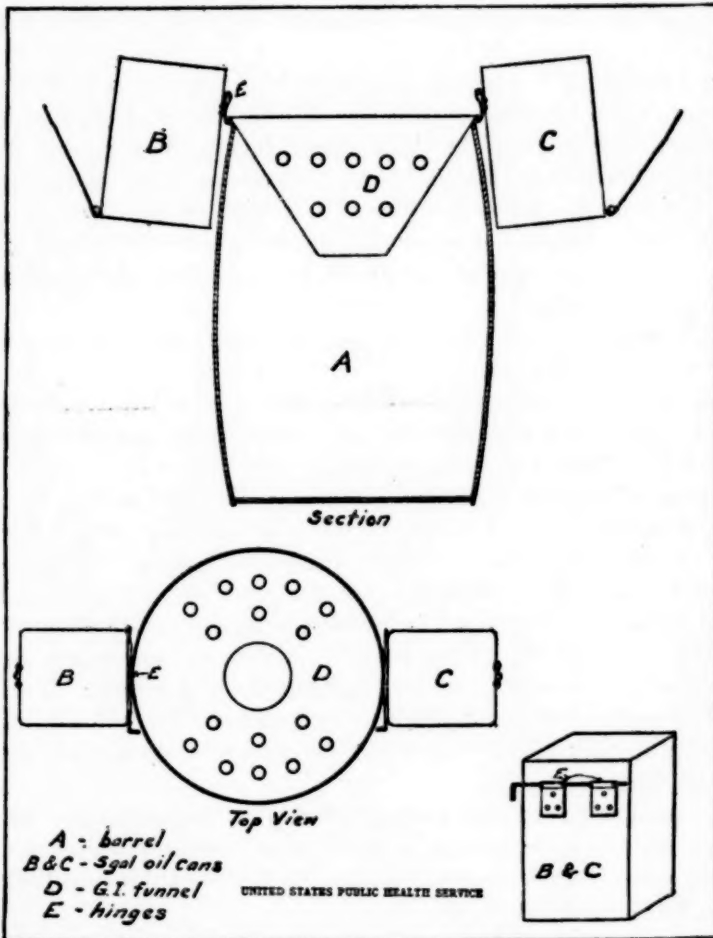
(11) It is somewhat difficult to estimate the cost of carbon monoxide (funnel gas) fumigation. The coke consumed is the least of the

¹ R. S. Woglum, Sodium cyanide for fumigation purposes, Bull. No. 90, U. S. Department of Agriculture, p. 84.

expense, for the maintenance of a tug or launch is essential to this method of fumigation.

To the price of coke must be added such items as the salaries and subsistence of the crew and the upkeep and depreciation of the fumigating vessel.

For the month of July, 1915, there were fumigated by carbon monoxide at New Orleans 58 vessels, in addition to those treated with sulphur or cyanide gas.



This period was selected at random and represented about the usual monthly average of ships fumigated at New Orleans. During this month the pay and subsistence of the crew of the fumigating tug *Neptune* was \$1,518.40. The coke consumed amounted to \$283.08, making a total of \$1,801.48. The average cost per ship fumigated was therefore \$31.06.

Averaging this amount for each 1,000 cubic feet of space fumigated, the cost would be slightly over 16 cents, in comparison with the unit price of 11 cents for sulphur fumigation, 8 to 12 cents for potassium cyanide, and 6 cents for sodium cyanide fumigation. Needless to observe, the increased cost of carbon monoxide would be very materially augmented were the depreciation of a \$60,000 vessel and its machinery considered.

It should also be considered that the unit price of carbon monoxide fumigation would vary with the number of vessels fumigated, on account of the fixed overhead charge of the tug and crew maintenance.

The amount of fumigation work varies at different stations and fluctuates according to sanitary conditions, but it is believed that the monthly average of 58 ships would hardly be exceeded at any service station, and for the most part the number would be far less.

In order to facilitate the fumigation with hydrocyanic acid gas of holds of ships and other large spaces, where the escape of the operator after placing the cyanide in acid by hand is impossible, the following apparatus has been devised:

A. Ordinary wooden barrel, open at top, as the container for water and acid solution.

B-C. Five-gallon tins, with tops removed, and pin hinges placed on one side 2 inches below the top, made to fit similar hinges on sides of D. These tins hold cyanide.

D. Funnel of galvanized iron, 23 inches diameter at top, 12 inches perpendicular depth, 6 inches opening at bottom, series of 1-inch holes on sides opposite to hinges; hinges extending 2 inches above rim of funnel. It is intended that the acid and water mixture be placed in the barrel before it is lowered into the hold, the funnel to be then placed at the top of the barrel and the tins containing the cyanide attached to the funnel by means of the pin hinges. Ropes are attached to the bottom of the cans and passed over hatch combings. By simply pulling these ropes the contents of the cans are dumped into the barrel.

The advantages of this arrangement over the barrel and solution method are the great saving in time, labor, and apparatus required, and the more effective results obtained by the instantaneous liberation of the full amount of the gas.

PLAGUE-PREVENTION WORK.

CALIFORNIA.

The following report of plague-prevention work in California for the week ended November 13, 1915, was received from Senior Surgeon Pierce, of the United States Public Health Service, in charge of the work:

SAN FRANCISCO, CAL.

RAT PROOFING.

New buildings:	
Inspections of work under construction.	231
Basements concreted (18,229 square feet)	21
Floors concreted (23,410 square feet)....	15
Yards, passageways, etc. (10,173 square feet).....	64
Total area of concrete laid (square feet)...	40,812
Class A, B, and C (fireproof) buildings:	
Inspections made.....	138
Roof and basement ventilators, etc., screened.....	2,433
Wire screening used (square feet).....	12,990
Openings around pipes, etc., closed with cement.....	2,034
Sidewalk lens lights replaced.....	1,000
Old buildings:	
Inspections made.....	348
Wooden floors removed.....	23
Yards and passageways, planking removed.....	15
Cubic feet new foundation walls installed.....	1,650
Concrete floors installed (15,947 square feet).....	19
Basements concreted (6,570 square feet)....	10
Yards and passageways, etc., concreted (10,975 square feet).....	34
Total area concrete laid (square feet)....	32,592
Floors rat proofed with wire cloth (5,425 square feet).....	3
Buildings razed.....	6
New garbage cans stamped approved.....	344
Nuisances abated.....	152

OPERATIONS ON THE WATER FRONT.

Vessels inspected for rat guards.....	15
Reinspections made on vessels.....	23
New rat guards procured.....	12
Defective rat guards repaired.....	4
Rats trapped on wharves and water front...	46
Rats trapped on vessels.....	16
Traps set on wharves and water front.....	194
Traps set on vessels.....	55

SAN FRANCISCO, CAL.—Continued.

OPERATIONS ON THE WATER FRONT—contd.

Vessels trapped on.....	12
Poisons placed on water front (pieces).....	3,000
Poisons placed within Panama Pacific International Exposition grounds (pieces).....	7,200
Bait used on water front and vessels, bacon (pounds).....	6
Amount of bread used in poisoning water front (loaves).....	12
Poison used on water front (pounds).....	6

RATS COLLECTED AND EXAMINED FOR PLAGUE.

Collected.....	432
Examined.....	330
Found infected.....	None.

RATS IDENTIFIED.

Mus norvegicus.....	234
Mus musculus.....	79
Mus alexandrinus.....	62
Mus rattus.....	57

RANCHES INSPECTED AND HUNTED OVER.

Contra Costa County.....	6
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SQUIRRELS COLLECTED AND EXAMINED FOR PLAGUE.

Contra Costa County:	
Collected.....	36
Examined.....	36
Found infected.....	1

OTHER ANIMALS COLLECTED AND EXAMINED FOR PLAGUE.

Contra Costa County.....	1 wood rat.
Found infected.....	None.

PLAGUE-INFECTED SQUIRREL.

Contra Costa County—Shot Oct. 28, 1915—T. E. Chadburne ranch, 8 miles south of Antioch, sec. 19, T. 1 N., R. 2 E.....	
	1 squirrel.

Record of plague infection.

Places in California.	Date of last case of human plague.	Date of last case of rat plague.	Date of last case of squirrel plague.	Total number rodents found infected since May, 1907.
Cities:				
San Francisco.....	Jan. 30, 1908	Oct. 23, 1908	(¹)	398 rats.
Oakland.....	Aug. 9, 1911	Dec. 1, 1908	(¹)	120 rats.
Berkeley.....	Aug. 28, 1907	(¹)	(¹)	None.
Los Angeles.....	Aug. 11, 1908	(¹)	Aug. 21, 1908	1 squirrel.
Counties:				
Alameda (exclusive of Oakland and Berkeley).....	Sept. 21, 1909	Oct. 17, 1909 ²	July 12, 1915	287 squirrels, 1 wood rat.
Contra Costa.....	July 13, 1915	(¹)	Oct. 28, 1915	1,595 squirrels.
Fresno.....	(¹)	(¹)	Oct. 27, 1911	1 squirrel.
Merced.....	(¹)	(¹)	July 12, 1911	5 squirrels.
Monterey.....	(¹)	(¹)	Apr. 10, 1914	6 squirrels.
San Benito.....	June 4, 1913	(¹)	Aug. 14, 1915	50 squirrels.
San Joaquin.....	Sept. 18, 1911	(¹)	Aug. 25, 1911	18 squirrels.
San Luis Obispo.....	(¹)	(¹)	Jan. 29, 1910	1 squirrel.
Santa Clara.....	Aug. 31, 1910	(¹)	July 23, 1913	25 squirrels.
Santa Cruz.....	(¹)	(¹)	May 17, 1910	3 squirrels.
Stanislaus.....	(¹)	(¹)	June 2, 1911	13 squirrels.

¹ None.² Wood rat.

The work is being carried on in the following-named counties: Alameda, Contra Costa, San Francisco, Stanislaus, San Benito, and Monterey.

LOUISIANA—NEW ORLEANS—PLAGUE ERADICATION.

The following report of plague-eradication work at New Orleans for the week ended November 13, 1915, was received from Surg. Creel, of the United States Public Health Service, in charge of the work:

OUTGOING QUARANTINE.		LABORATORY OPERATIONS.	
Vessels fumigated with sulphur.....	14	Rodents received by species:	
Vessels fumigated with carbon monoxide..	13	Mus rattus.....	132
Vessels fumigated with cyanide gas.....	2	Mus norvegicus.....	890
Sulphur used (pounds).....	2,976	Mus alexandrinus.....	136
Coke consumed in carbon monoxide fumigation (pounds).....	16,200	Mus musculus.....	6,409
Cyanide used in cyanide-gas fumigation (pounds).....	132	Wood rats.....	82
Sulphuric acid used in cyanide-gas fumigation (pints).....	132	Muskrats.....	16
Clean bills of health issued.....	38	Putrid (included in enumeration of species).....	80
Foul bills of health issued.....	4	Total rodents received at laboratory.....	7,665
FIELD OPERATIONS.		Rodents examined.....	1,421
Rats trapped.....	7,961	Number of suspicious rats.....	9
Premises inspected.....	7,200	Plague rats confirmed.....	None.
Notices served.....	738	Last case of human plague, Sept. 8, 1915.	
Number of garbage cans installed.....	20	Last case of rodent plague, Nov. 4, 1915.	
BUILDINGS RAT PROOFED.		Total number of rodents captured to Nov. 13.....	497,983
By elevation.....	62	Total number of rodents examined to Nov. 13.....	300,028
By marginal concrete wall.....	78		
By concrete floor and wall.....	64	Total cases of rodent plague to Nov. 13, by species:	
By minor repairs.....	130	Mus musculus.....	5
Total buildings rat proofed.....	334	Mus rattus.....	18
Concrete laid (square yards).....	9,387	Mus alexandrinus.....	9
Lots and sheds, planking removed.....	21	Mus norvegicus.....	233
Buildings demolished.....	25		
Total buildings rat proofed to date (abated).....	94,641	Total rodent cases to Nov. 13, 1915....	265

WASHINGTON—SEATTLE—PLAGUE ERADICATION.

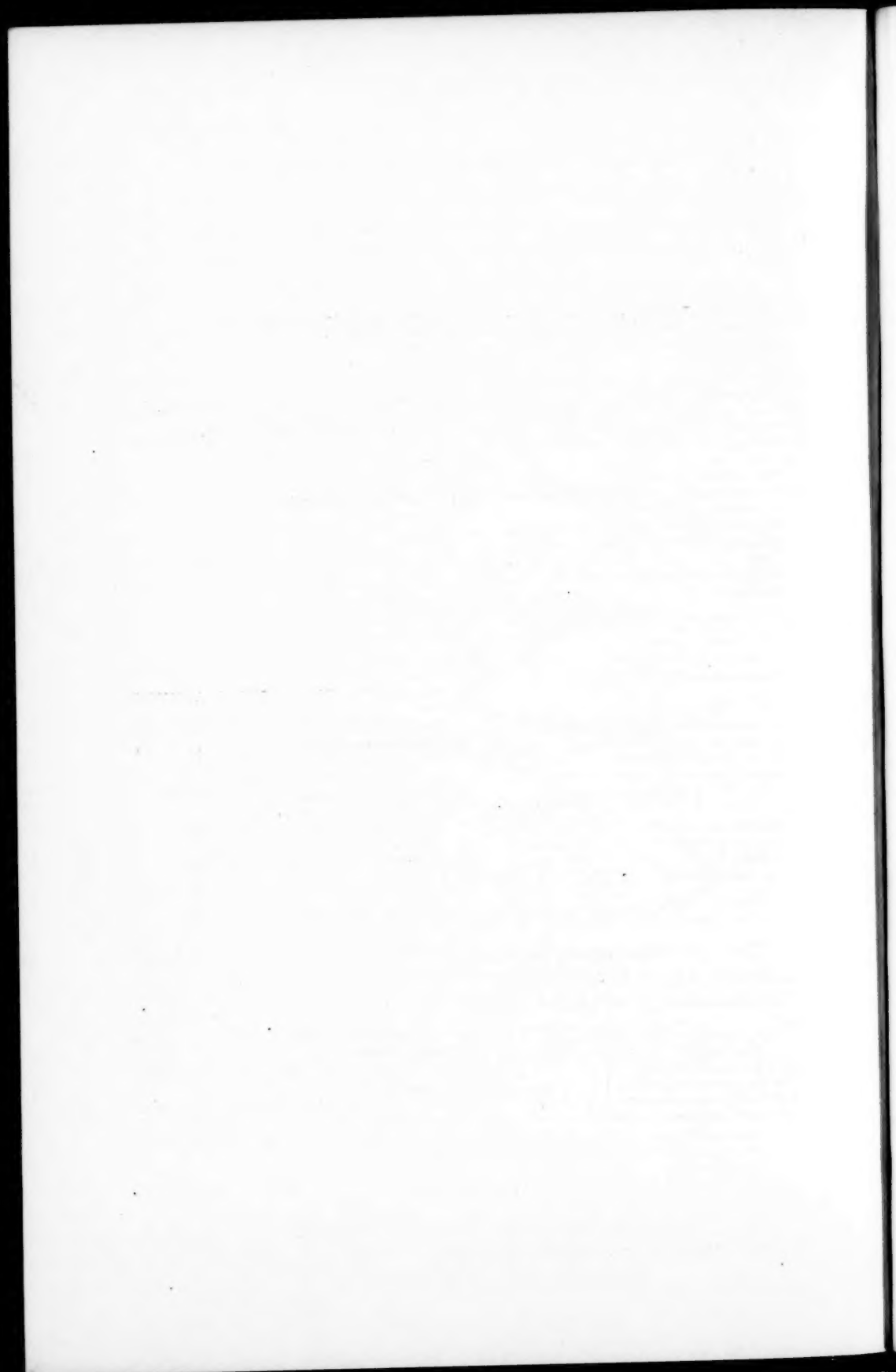
The following report of plague-eradication work at Seattle for the week ended November 13, 1915, was received from Surg. Lloyd, of the United States Public Health Service, in charge of the work:

RAT PROOFING.		WATER FRONT.	
New buildings inspected.....	28	Vessels inspected and histories recorded....	14
New buildings reinspected.....	19	Vessels fumigated.....	3
Basements concreted, new buildings (23,470 square feet).....	12	Sulphur used (pounds).....	2,750
Floors concreted, new buildings (37,275 square feet).....	15	New rat guards installed.....	9
Yards, etc., concreted (4,575 square feet)....	2	Defective rat guards repaired.....	24
Sidewalks concreted (square feet).....	6,790	Fumigation certificates issued.....	3
Total concrete laid, new structures (square feet).....	72,110	Port sanitary statements issued.....	64
New buildings elevated.....	6	The usual day and night patrol was maintained to enforce rat guarding and fending.	
New premises rat proofed, concrete.....	27	MISCELLANEOUS WORK.	
Old buildings inspected.....	5	Rat-proofing notices sent to contractors, new buildings.....	14
Premises rat proofed, concrete, old buildings.	2	Letters sent in re rat complaints.....	6
Floors concreted, old buildings (3,775 square feet).....	2	RODENTS EXAMINED IN EVERETT.	
Wooden floors removed, old buildings.....	2	Mus musculus trapped.....	2
Buildings razed.....	3	Mus musculus found dead.....	1
LABORATORY AND RODENT OPERATIONS.		Mus norvegicus trapped.....	47
Dead rodents received.....	16	Mus norvegicus found dead.....	2
Rodents trapped and killed.....	390	Total.....	52
Rodents recovered after fumigation.....	56	Rodents examined for plague infection.....	48
Total.....	462	Rodents proven plague infected.....	None.
Rodents examined for plague infection.....	289	RAT-PROOFING OPERATIONS IN EVERETT.	
Rodents proven plague infected.....	1	New buildings inspected.....	4
Poison distributed (pounds).....	17	New buildings—concrete foundations.....	3
Bodies examined for plague infection.....	2	New buildings elevated 18 inches.....	1
CLASSIFICATION OF RODENTS.		New buildings—basements concreted (600 square feet).....	1
Mus rattus.....	30	New buildings—yards concreted (180 square feet).....	1
Mus alexandrinus.....	81	Total concrete laid, new buildings (square feet).....	780
Mus norvegicus.....	266		
Mus musculus.....	85		

HAWAII—HONOLULU—PLAGUE PREVENTION.

The following report of plague-prevention work at Honolulu for the week ended November 6, 1915, was received from Surg. Trotter, of the United States Public Health Service:

Total rats and mongoose taken.....	320	Average number of traps set daily.....	984
Rats trapped.....	310	Cost per rat destroyed.....cents..	24½
Mongoose trapped.....	10	Last case rat plague Aiea, 9 miles from Honolulu, Apr. 12, 1910.	
Examined microscopically.....	268	Last case human plague, Honolulu, July 12, 1910.	
Showing plague infection.....	None.	Last case rat plague, Paaulo, Hawaii, Nov. 1, 1915.	
Classification of rats trapped:		Last case human plague, Paaulo, Hawaii, Oct. 23, 1915.	
Mus alexandrinus.....	140		
Mus musculus.....	91		
Mus norvegicus.....	61		
Mus rattus.....	18		



PREVALENCE OF DISEASE.

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring.

IN CERTAIN STATES AND CITIES.

CEREBROSPINAL MENINGITIS.

State Reports for October, 1915.

Place.	New cases reported.	Place.	New cases reported.
Indiana:		Virginia—Continued.	
Clark County.....	2	Hanover County.....	1
Marion County.....	2	Lee County.....	1
Total.....	4	Montgomery County.....	1
Montana:		Nansemond County.....	1
Dawson County.....	1	New Kent County.....	1
Virginia:		Norfolk County.....	1
Albemarle County—		Pittsylvania County.....	1
Charlottesville.....	1	Pulaski County.....	1
Amherst County.....	1	Rockbridge County.....	1
Clarke County.....	2	Russell County.....	1
Culpeper County.....	1	Southampton County.....	1
Floyd County.....	2	Tazewell County.....	1
Gloucester County.....	1	Wise County.....	1
		Total.....	21

City Reports for Week Ended Nov. 13, 1915.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Chicago, Ill.....	2	1	Medford, Mass.....	1	1
Cincinnati, Ohio.....	2		Newark, N. J.....	1	1
Cleveland, Ohio.....	1		New York, N. Y.....	1	
Dayton, Ohio.....	1		Philadelphia, Pa.....	1	1
Detroit, Mich.....	1	1	St. Louis, Mo.....		1

DENGUE.

Texas—Laredo.

Acting Asst. Surg. Hamilton reported, November 17, 1915, that dengue was epidemic in Laredo, Tex.

DIPHThERIA.

See Diphtheria, measles, scarlet fever, and tuberculosis, page 3562.

ERYSIPELAS.**City Reports for Week Ended Nov. 13, 1915.**

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Buffalo, N. Y.....	3	2	Montclair, N. J.....	1	.....
Chicago, Ill.....	8	1	Newark, N. J.....	1	.....
Cleveland, Ohio.....	4	1	New York, N. Y.....	.....	1
Dayton, Ohio.....	2	.....	Philadelphia, Pa.....	2	1
Detroit, Mich.....	1	1	Providence, R. I.....	.....	1
Erie, Pa.....	1	.....	Reading, Pa.....	1	.....
Los Angeles, Cal.....	1	.....	St. Louis, Mo.....	3	.....

LEPROSY.**Louisiana—New Orleans.**

During the week ended November 13, 1915, one case of leprosy was notified in New Orleans, La.

MALARIA.**State Report for October, 1915.**

During the month of October, 1915, 1,857 cases of malaria were reported in Virginia.

City Reports for Week Ended Nov. 13, 1915.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Berkeley, Cal.....	1	.....	Dallas, Tex.....	5	2
Boston, Mass.....	2	.....	Philadelphia, Pa.....	1	.....
Chicago, Ill.....	.....	1	Wilmington, N. C.....	1	.....

MEASLES.

See Diphtheria, measles, scarlet fever, and tuberculosis, page 3562.

PELLAGRA.**State Reports for October, 1915.**

During the month of October, 1915, cases of pellagra were notified in States as follows: Texas, 11; Virginia, 41; Washington, 1.

City Reports for Week Ended Nov. 13, 1915.

During the week ended November 13, 1915, pellagra was reported in cities as follows: Dallas, Tex., 1 death; Mobile, Ala., 3 deaths; New Orleans, La., 1 case and 1 death; Wilmington, N. C., 1 case and 1 death.

PLAGUE.

Louisiana—New Orleans—Plague-Infected Rat Found.

Surgeon Creel reported that a rat trapped November 5, 1915, at 1323 Carondelet Street, New Orleans, La., was proven positive for plague infection November 23, 1915.

Washington—Seattle—Plague-Infected Rat Found.

Surgeon Lloyd reported by telegraph November 30, 1915, that a plague-infected rat had been found at Western Avenue and University Street, Seattle, Wash.

PNEUMONIA.

City Reports for Week Ended Nov. 13, 1915.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Binghamton, N. Y.	1	.....	Lancaster, Pa.	1	.....
Chicago, Ill.	118	51	Los Angeles, Cal.	9	9
Cleveland, Ohio	23	16	Manchester, N. H.	2	2
Coffey, Ill., Kans.	1	1	Newark, N. J.	6	6
Dayton, Ohio	4	8	New Castle, Pa.	1	.....
Detroit, Mich.	3	9	Newport, Ky.	2	2
Dunkirk, N. Y.	3	.....	Philadelphia, Pa.	39	36
Erie, Pa.	2	.....	Reading, Pa.	4	.....
Grand Rapids, Mich.	1	1	Sacramento, Cal.	3	.....
Harrisburg, Pa.	2	6	Salt Lake City, Utah	1	4
Kalamazoo, Mich.	2	1	Stockton, Cal.	1	1

POLIOMYELITIS (INFANTILE PARALYSIS).

State Reports for October, 1915.

Place.	New cases reported.	Place.	New cases reported.
Indiana:		Virginia—Continued.	
Marion County	1	Henry County	1
Martin County	1	King George County	1
Wayne County	1	Lee County	1
Total	3	Middlesex County	1
Montana:		Mecklenburg County	2
Fergus County	1	Montgomery County	1
Virginia:		Nansemond County	2
Accomac County	2	Norfolk County	1
Brunswick County	1	Orange County	1
Dinwiddie County	1	Prince Edward County	3
Gloucester County	1	Smyth County	2
Halifax County	1	Stafford County	1
		Sussex County	1
		Total	24

City Reports for Week Ended Nov. 13, 1915.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Akron, Ohio	1	.....	Lorain, Ohio	1	.....
Boston, Mass.	2	.....	Los Angeles, Cal.	2	.....
Cleveland, Ohio	2	.....	Newark, N. J.	3	.....
Dayton, Ohio	1	.....	New York, N. Y.	2	.....
Detroit, Mich.	1	.....	Pittsfield, Mass.	2	.....
Erie, Pa.	2	.....		

SCARLET FEVER.

See Diphtheria, measles, scarlet fever, and tuberculosis, page 3562.

SMALLPOX.

Minnesota.

Collaborating Epidemiologist Bracken reported by telegraph that during the week ended November 27, 1915, six new foci of smallpox infection were reported in Minnesota, cases of the disease having been notified as follows: Douglas County, La Grand Township, 1; Meeker County, Forest City Township, 1; Nicollet County, Courtland, 2; Ottertail County, Compton Township, 1; Redwood County, Underwood Township 1, Vail Township, 1.

Texas—Brownsville.

Acting Asst. Surg. Fairbanks reported by telegraph November 25, 1915, that 14 cases of smallpox, with 2 deaths, had occurred at Brownsville, Tex.

Texas—Webb and Laredo.

Acting Asst. Surg. Hamilton reported that on November 14, 1915, a case of smallpox in a Mexican, F. C., was discovered at Webb, Tex. The patient was removed to Laredo and there isolated. The infection originated at San Juan, State of Nuevo Leon, Mexico, which place the patient left October 31, 1915.

Miscellaneous State Reports.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Indiana (Oct. 1-31):			Texas (Oct. 1-31):		
Counties—			Counties—		
Elberta.....	5		Cameron.....	2	
Fountain.....	2		El Paso.....	7	
Gilson.....	15		Hamilton.....	1	
Grant.....	1		Jefferson.....	15	
Jasper.....	5		Kaufman.....	1	
Lake.....	3		San Augustine.....	15	
Madison.....	3		Smith.....	2	
Vanderburg.....	5		Tarrant.....	2	
Total.....	39		Williamson.....	1	
Montana (Oct. 1-31):			Total.....	46	
Counties—			Virginia (Oct. 1-31):		
Blaine county.....	6		Appomattox County.....	1	
Cascade county.....	1		Brunswick County.....	1	
Chouteau county.....	4		Giles County.....	3	
Hill county.....	4		Greensville County.....	4	
Madison county.....	1		Henrico County—		
Park county—			Richmond.....	1	
Livingston.....	3		Lunenburg County.....	1	
Silverbow county.....	8		Norfolk County.....	2	
Butte.....	12		Nottoway County.....	1	
Yellowstone County.....	1		Pittsylvania County.....	1	
Billings.....	1		Total.....	15	
Total.....	41		Washington (Oct. 1-31):		
North Dakota (Oct. 1-31):			King County.....	3	
Counties—			Kittitas County.....	2	
Burleigh.....	1		Spokane County.....	2	
Grand Forks.....	22		Spokane.....	1	
Laurel.....	1		Whitman County.....	1	
Nelson.....	4		Total.....	9	
Ward.....	4				
Total.....	32				

SMALLPOX—Continued.

City Reports for Week Ended Nov. 13, 1915.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Brownsville, Tex.....	1	.....	Grand Rapids, Mich.....	3	.....
Chicago, Ill.....	1	.....	Lincoln, Neb.....	8	.....
Davenport, Iowa.....	7	.....	Seattle, Wash.....	1	.....
Detroit, Mich.....	3	.....	Springfield, Ill.....	2	.....
Dubuque, Iowa.....	1	.....	Toledo, Ohio.....	4	.....
Evansville, Ind.....	3	.....		

TETANUS.

City Reports for Week Ended Nov. 13, 1915.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Baltimore, Md.....		1	New York, N. Y.....	1	2
Chicago, Ill.....	1	.....	Providence, R. I.....		1
Dayton, Ohio.....	1	.....	Reading, Pa.....	1	1
Galveston, Tex.....		1	Trenton, N. J.....	1	.....
New Orleans, La.....	1	.....		

TUBERCULOSIS.

See Diphtheria, measles, scarlet fever, and tuberculosis, page 3562.

TYPHOID FEVER.

State Reports for October, 1915.

Place.	New cases reported.	Place.	New cases reported.
Indiana:		Indiana—Continued.	
Adams County.....	16	Parke County.....	2
Allen County.....	4	Perry County.....	1
Carroll County.....	2	Pike County.....	15
Cass County.....	3	Porter County.....	1
Clark County.....	10	Putnam County.....	1
Clay County.....	1	Randolph County.....	7
Clinton County.....	2	Ripley County.....	1
Daviess County.....	1	Rush County.....	1
Dearborn County.....	3	Scott County.....	1
Decatur County.....	2	St. Joseph County.....	3
Delaware County.....	4	Tippecanoe County.....	3
Elkhart County.....	6	Vanderburg County.....	19
Fayette County.....	2	Vigo County.....	4
Floyd County.....	5	Warren County.....	3
Gibson County.....	8	Washington County.....	2
Grant County.....	4	Wayne County.....	2
Greene County.....	2	White County.....	2
Hamilton County.....	1	Whitley County.....	2
Hancock County.....	1		
Howard County.....	3	Total.....	249
Huntington County.....	3		
Jackson County.....	4	Montana:	
Jay County.....	1	Blaine County.....	10
Jennings County.....	10	Cascade County.....	
Johnson County.....	8	Great Falls.....	14
Knox County.....	6	Custer County.....	4
Lafayette County.....	10	Chouteau County.....	1
Lawrence County.....	7	Dawson County.....	1
Madison County.....	3	Fergus County.....	1
Marion County.....	18	Flathead County.....	
Marlin County.....	18	Katlatz.....	8
Miami County.....	2	Fallon County.....	2
Montgomery County.....	5	Gallatin County.....	
Ohio County.....	1	Bozeman.....	4
Orange County.....	3	Hill County.....	20

TYPHOID FEVER—Continued.

State Reports for October, 1915—Continued.

Place.	New cases reported.	Place.	New cases reported.
Montana—Continued.		Virginia—Continued.	
Lincoln County.....	1	Alexandria County.....	1
Meagher County.....	3	Alleghany County.....	8
Mineral County.....	1	Amherst County.....	15
Missoula County.....	1	Appomattox County.....	2
Missoula.....	2	Augusta County.....	18
Prairie County.....	2	Bath County.....	5
Richland County.....	1	Bedford County.....	5
Rosebud County.....	1	Bland County.....	4
Silverbow County—		Botetourt County.....	17
Butte.....	2	Brunswick County.....	6
Sheridan County.....	5	Buchanan County.....	5
Stillwater County.....	2	Buckingham County.....	4
Teton County.....	3	Campbell County.....	10
Yellowstone County.....	5	Lynchburg.....	9
Billings.....	6	Caroline County.....	17
Total.....	100	Carroll County.....	3
North Dakota:		Charlotte County.....	5
Adams County.....	1	Chesterfield County.....	3
Bowman County.....	5	Culpeper County.....	3
Burleigh County.....	6	Dinwiddie County.....	3
Cavalier County.....	2	Elizabeth City County.....	3
Grand Forks County.....	1	Essex County.....	4
Hettinger County.....	5	Fairfax County.....	7
Morton County.....	1	Fauquier County.....	11
Nelson County.....	1	Floyd County.....	6
Pierce County.....	1	Fluvanna County.....	2
Ramsey County.....	5	Franklin County.....	3
Ransom County.....	3	Frederick County.....	22
Rolette County.....	3	Giles County.....	8
Sargent County.....	1	Gloucester County.....	6
Trall County.....	1	Grayson County.....	11
Walsh County.....	3	Hallfax County.....	2
Total.....	39	Hanover County.....	13
Texas:		Henrico County.....	4
Archer County.....	1	Richmond.....	24
Bell County.....	1	Henry County.....	29
Bosque County.....	3	Highland County.....	6
Bee County.....	2	Isle of Wight County.....	6
Burnet County.....	4	James City County.....	2
Coleman County.....	1	King and Queen County.....	2
Comal County.....	1	Lancaster County.....	2
Cooke County.....	2	Lee County.....	2
Da las County.....	25	Loudoun County.....	2
Donley County.....	2	Louisa County.....	5
Denton County.....	9	Lunenburg County.....	1
El Paso County.....	13	Mathews County.....	1
Ellis County.....	1	Mecklenburg County.....	7
Grayson County.....	2	Middlesex County.....	4
Guadalupe County.....	8	Montgomery County.....	6
Galveston County.....	10	Nelson County.....	5
Henderson County.....	1	New Kent County.....	7
Hamilton County.....	2	Norfolk County.....	13
Hunt County.....	8	Northampton County.....	10
Jefferson County.....	3	Northumberland County.....	9
Johnson County.....	3	Nottoway County.....	6
Kaufman County.....	1	Orange County.....	3
Midland County.....	2	Pace County.....	8
Parker County.....	1	Pittsylvania County.....	4
Stephens County.....	7	Princess Anne County.....	3
San Augustine County.....	2	Prince Edward County.....	4
Smith County.....	2	Prince William County.....	10
Tarrant County.....	9	Pulaski County.....	12
Travis County.....	3	Rappahannock County.....	1
Wise County.....	1	Richmond County.....	1
Young County.....	1	Roanoke County.....	15
Total.....	132	Roanoke.....	8
Virginia:		Rockbridge County.....	10
Accomac County.....	20	Rockingham County.....	14
Albemarle County.....	11	Russell County.....	17
Charlottesville.....	2	Scott County.....	8
		Shenandoah County.....	7
		Smyth County.....	6
		Southampton County.....	4
		Spottsylvania County.....	5
		Surry County.....	2
		Sussex County.....	2

TYPHOID FEVER—Continued.

State Reports for October, 1915—Continued.

Place.	New cases reported.	Place.	New cases reported.
Virginia—Continued.		Washington—Continued.	
Tazewell County.....	20	King County.....	2
Warren County.....	5	Seattle.....	5
Warwick County.....	4	Kittitas County.....	8
Washington County.....	13	Lincoln County.....	5
Westmoreland County.....	2	Okanogan County.....	9
Wise County.....	19	Pierce County.....	1
Wythe County.....	7	Tacoma.....	8
York County.....	4	Skagit County.....	2
Total.....	650	Snohomish County—	
Washington:		Everett.....	3
Asotin County.....	1	Spokane County—	
Benton County.....	5	Spokane.....	5
Chelan County.....	3	Stevens County.....	2
Columbia County.....	1	Thurston County.....	6
Douglas County.....	2	Walla Walla County.....	2
Ferry County.....	5	Whatcom County.....	1
Garfield County.....	1	Whitman County.....	5
Grays Harbor County.....	1	Yakima County.....	23
		Total.....	106

City Reports for Week Ended Nov. 13, 1915.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Akron, Ohio.....	2		Malden, Mass.....	1	
Altoona, Pa.....	1		Manchester, N. H.....	1	
Baltimore, Md.....	25	6	Melrose, Mass.....	3	
Boston, Mass.....	12		Mobile, Ala.....	3	1
Briarport, Conn.....	2		Nashville, Tenn.....	13	2
Brookline, Mass.....	1		Newark, N. J.....	1	
Buffalo, N. Y.....	8	2	New Bedford, Mass.....	3	
Camden, N. J.....	1		New Castle, Pa.....	4	
Cambridge, Mass.....	1		New Haven, Conn.....	4	
Charleston, S. C.....	1		New London, Conn.....	2	
Chelsea, Mass.....	1		New Orleans, La.....	5	1
Chicago, Ill.....	21	1	Newton, Mass.....	2	
Chirosee, Mass.....	1		New York, N. Y.....	54	6
Cincinnati, Ohio.....	1		Northampton, Mass.....	2	
Cleveland, Ohio.....	7	1	Oakland, Cal.....	1	1
Clinton, Mass.....	1		Philadelphia, Pa.....	26	
Coffeyville, Kans.....	1		Portland, Oreg.....	1	
Columbus, Ohio.....	3	3	Portsmouth, Va.....	1	
Cumberland, Md.....	4		Providence, R. I.....	7	1
Dallas, Tex.....	6		Racine, Wis.....	1	
Danville, Ill.....	1		Reading, Pa.....	2	1
Dayton, Ohio.....	2		Richmond, Va.....	3	
Detroit, Mich.....	7	1	Saginaw, Mich.....	1	
Duluth, Minn.....	2	2	St. Louis, Mo.....	5	
Elgin, Ill.....	1		Salt Lake City, Utah.....	1	
Evansville, Ind.....	1		San Diego, Cal.....	1	
Fitchburg, Mass.....	1		Saratoga Springs, N. Y.....	1	
Galveston, Tex.....	5		Seattle, Wash.....	4	
Grand Rapids, Mich.....	6	2	South Bend, Ind.....	1	1
Hartford, Conn.....	4		Springfield, Ill.....	1	
Haverhill, Mass.....	1		Springfield, Mass.....	3	1
Johnstown, Pa.....	5		Steelton, Pa.....	1	
Lancaster, Pa.....	1		Staubenville, Ohio.....	4	
Lawrence, Mass.....	1		Taunton, Mass.....	2	
Lexington, Ky.....	1		Toledo, Ohio.....	4	1
Lima, Ohio.....	1		Washington, D. C.....	15	3
Lincoln, Nebr.....	1		Wheeling, W. Va.....	1	
Los Angeles, Cal.....	2	1	Wilkes-Barre, Pa.....		1
Lowell, Mass.....	3		Worcester, Mass.....	3	

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS.

State Reports for October, 1915.

State.	Cases reported.			State.	Cases reported.		
	Diphtheria.	Measles.	Scarlet fever.		Diphtheria.	Measles.	Scarlet fever.
Indiana.....	543	167	364	Texas.....	533	.....	321
Montana.....	5	27	12	Virginia.....	1,294	102	264
North Dakota.....	13	1	23	Washington.....	43	13	65

City Reports for Week Ended Nov. 13, 1915.

City.	Population as of July 1, 1915 (esti- mated by U. S. Cen- sus Bu- reau).	Total deaths from all causes.	Diph- theria.		Measles.		Scarlet fever.		Tuber- culosis.		
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	
Over 500,000 inhabitants:											
Baltimore, Md.....	584,605	190	39	4	29	1	25	.....	28	16
Boston, Mass.....	745,139	182	65	6	31	1	31	1	42	11	
Chicago, Ill.....	2,447,045	581	140	13	54	4	83	.....	256	74
Cleveland, Ohio.....	656,975	165	81	.....	19	.....	31	2	31	13
Detroit, Mich.....	554,717	157	67	5	36	.....	22	1	27	18
Philadelphia, Pa.....	1,683,664	454	88	11	25	.....	20	.....	97	46
St. Louis, Mo.....	745,988	175	100	8	5	.....	18	1	22	18
From 300,000 to 500,000 inhab- itants:											
Buffalo, N. Y.....	461,335	140	25	3	144	2	5	.....	31	14
Cincinnati, Ohio.....	406,706	136	50	3	4	.....	4	.....	29	12
Jersey City, N. J.....	300,133	62	17	.....	39	.....	10	.....	20	10
Los Angeles, Cal.....	465,367	103	20	1	.....	.....	4	.....	38	17
Newark, N. J.....	399,000	.....	19	.....	43	.....	18	.....	60	14
New Orleans, La.....	366,484	147	60	6	1	.....	5	.....	15	16
Seattle, Wash.....	330,834	47	1	.....	.....	.....	1	.....	.....	.....
Washington, D. C.....	358,679	128	32	.....	2	.....	9	.....	17	11
From 200,000 to 300,000 inhab- itants:											
Columbus, Ohio.....	209,722	68	40	.....	.....	.....	7	.....	8	4
Portland, Oreg.....	272,833	37	7	.....	3	.....	4	.....	10	4
Providence, R. I.....	250,025	72	12	2	.....	.....	13	1	.....	6
From 100,000 to 200,000 inhab- itants:											
Bridgeport, Conn.....	118,434	30	10	.....	2	.....	2	.....	2	3
Cambridge, Mass.....	111,669	24	8	1	.....	.....	3	.....	.....	4
Camden, N. J.....	104,349	.....	6	.....	.....	.....	2	.....	8	.....
Dallas, Tex.....	116,605	.....	10	1	.....	.....	10	.....	.....	2
Dayton, Ohio.....	125,509	40	20	1	2	.....	9	.....	4	2
Grand Rapids, Mich.....	125,759	30	6	1	.....	.....	2	.....	9	.....
Hartford, Conn.....	108,969	24	18	.....	1	.....	1	.....	6	3
Lowell, Mass.....	112,124	37	11	.....	.....	.....	2	.....	3	3
Lynn, Mass.....	100,316	28	20	.....	.....	.....	1	.....	2	2
Nashville, Tenn.....	115,978	40	1	.....	4	.....	7	.....	2	2
New Bedford, Mass.....	114,694	21	5	.....	.....	.....	1	.....	1	4
New Haven, Conn.....	147,095	.....	9	.....	2	.....	1	.....	6	1
Oakland, Cal.....	190,803	.....	6	1	1	.....	2	.....	5	1
Reading, Pa.....	105,094	43	.....	.....	19	.....	5	.....	3	2
Richmond, Va.....	154,674	30	22	2	.....	.....	10	.....	9	2
Salt Lake City, Utah.....	113,567	22	5	2	3	.....	2	.....	.....	.....
Springfield, Mass.....	103,216	30	2	.....	6	.....	2	.....	2	2
Toledo, Ohio.....	187,840	48	6	1	2	.....	14	1	17	6
Trenton, N. J.....	109,212	46	12	1	37	.....	1	.....	6	2
Worcester, Mass.....	160,523	38	11	1	2	.....	3	.....	5	1
From 50,000 to 100,000 inhab- itants:											
Akron, Ohio.....	82,958	24	11	1	.....	.....	5	.....	3	2
Altoona, Pa.....	57,006	8	4	.....	.....	.....	4	.....	3	2
Atlantic City, N. J.....	55,806	7	1	.....	1	.....	2	.....	.....	.....
Bayonne, N. J.....	67,582	.....	6	.....	.....	.....	.....	.....	5	.....
Berkeley, Cal.....	54,879	8	2	.....	1	.....	1	.....	3	.....
Binghamton, N. Y.....	53,082	21	5	.....	.....	.....	.....	.....	3	5
Charleston, S. C.....	60,427	24	.....	.....	.....	.....	.....	.....	.....	3
Duluth, Minn.....	91,913	8	1	.....	1	.....	5	.....	2	.....
Erie, Pa.....	73,798	35	5	.....	.....	.....	6	.....	3	.....

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Contd.

City Reports for Week Ended Nov. 13, 1915—Continued.

City.	Population as of July 1, 1915 (estimated by U. S. Census Bureau).	Total deaths from all causes.	Diph- theria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
From 50,000 to 100,000 inhabit- ants—Continued.										
Evansville, Ind.	72,125	18	2						2	2
Harrisburg, Pa.	70,754	20	4						8	1
Johnstown, Pa.	66,585	12	2		8		2		1	1
Lancaster, Pa.	50,269		1						2	1
Lawrence, Mass.	98,197	16	3		10		4	1	3	1
Malden, Mass.	50,067	9	9		2				1	1
Manchester, N. H.	76,959	20					4		4	4
Mobile, Ala.	56,536	30	1				1			7
New Britain, Conn.	52,203									1
Passaic, N. J.	69,010	21	2		16		4		6	4
Pawtucket, R. I.	58,156	22	5		4		1			2
Rockford, Ill.	53,761	14	1		58		1			3
Sacramento, Cal.	64,806	19	4		1		3		2	2
Saginaw, Mich.	54,815	15	4		1		2			
San Diego, Cal.	51,115	15	14				2		1	1
Somerville, Mass.	85,460	16	12	2			6		1	2
South Bend, Ind.	67,030	18	12	2	1		3		1	
Springfield, Ill.	59,468		16				6	1		1
Springfield, Ohio.	50,804	8	1		1		1		5	
Wilkes-Barre, Pa.	75,218	20	6				1		11	
From 25,000 to 50,000 inhabit- ants:										
Alameda, Cal.	27,031	6	1				1			
Brookline, Mass.	31,934	8	2		1		2			
Butler, Pa.	26,587	4					1		3	1
Chelsea, Mass.	32,452	7	2		20				2	1
Chicopee, Mass.	28,688	6	3						2	1
Cumberland, Md.	25,564	5	2				1			
Danville, Ill.	31,554	9					1		2	2
Davenport, Iowa.	47,127						1			
East Orange, N. J.	41,155	5	4				6		2	
Elgin, Ill.	27,844	7					4		1	
Everett, Mass.	38,307	7	4							1
Everett, Wash.	33,767	4			1		1		1	
Fitchburg, Mass.	41,144	11	6				2			2
Galveston, Tex.	41,076	24	9				1		2	3
Green Bay, Wis.	28,689						2			
Haverhill, Mass.	47,774	10	4				1		3	1
Kalamazoo, Mich.	47,364	8					1		2	
Kenosha, Wis.	30,319	6								
La Crosse, Wis.	31,522	8	1		3					3
Lexington, Ky.	39,703	12	8				1			2
Lima, Ohio.	34,644	7	6	1			1			
Lincoln, Nebr.	46,028	12	1				8			
Lorain, Ohio.	35,662		6		1		6			
Lynchburg, Va.	32,385	10	5						1	
Medford, Mass.	25,737	5	2				2		1	
Montclair, N. J.	25,550	5	2							
New Castle, Pa.	40,351		7							
Newport, Ky.	31,722	13	2						1	1
Newport, R. I.	29,631	9					1			
Newton, Mass.	43,085		1	1	5				3	2
Niagara Falls, N. Y.	36,240	10	12	1	1				3	1
Norristown, Pa.	30,813	2	1	1						
Ogden, Utah.	30,466	2					1			
Orange, N. J.	32,524	8	9				8	1		
Pasadena, Cal.	43,859	5							3	1
Perth Amboy, N. J.	39,725		17	1			2			
Pittsfield, Mass.	37,580	3	3						2	
Portsmouth, Va.	38,610	12	3				1			1
Racine, Wis.	45,507	11	4		1				1	1
Roanoke, Va.	41,929		14						1	1
Rock Island, Ill.	27,961	4	2				4			
Steubenville, Ohio.	26,631	11	4							
Stockton, Cal.	34,568	6	3				4			
Superior, Wis.	45,285	5	2							2
Taunton, Mass.	35,957	12	1		10				2	
Waltham, Mass.	30,129	10	4		2		1			1
Wheeling, W. Va.	43,097		3				1		1	3

¹ Population Apr. 15, 1910; no estimate made.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Contd.

City Reports for Week Ended Nov. 13, 1915—Continued.

City.	Population as of July 1, 1915 (esti- mated by U. S. Cen- sus Bu- reau).	Total deaths from all causes.	Diph- theria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
From 25,000 to 50,000 inhabit- ants— continued.										
Williamsport, Pa.	33,495	10	1				1			
Wilmington, N. C.	28,264	15	3	1			1			
Zanesville, Ohio.	30,406		3							
From 10,000 to 25,000 inhabitants:										
Ann Arbor, Mich.	14,979	7	1							
Beaver Falls, Pa.	13,316		1				3			
Biddeford, Me.	17,570	1								
Cairo, Ill.	15,593	6								
Clinton, Mass.	13,075	3					1			
Coffeyville, Kans.	16,765		2							
Concord, N. H.	22,480	8								
Dunkirk, N. Y.	20,175		2				2			
Galesburg, Ill.	23,923	6								
Kearny, N. J.	22,753	7	2				1		4	
Key West, Fla.	21,437	6					3			
Melrose, Mass.	17,166	6								
Morristown, N. J.	13,158	6	2							
Muscatine, Iowa.	17,287	3								
Nanticoke, Pa.	22,441	9								
Newburyport, Mass.	15,195	5	3		1					
New London, Conn.	20,771	10	2	1					1	
North Adams, Mass.	22,019	3					1			
Northampton, Mass.	19,846		1				1			
Phoenix, Ariz.	17,798	4								
Plainfield, N. J.	23,280		3							
Rutland, Vt.	14,624	1								
Saratoga Springs, N. Y.	12,842	4					1			
Steelton, Pa.	15,337	1	1							
Wilkesburg, Pa.	22,361	5	1		2		2		1	
Woburn, Mass.	15,862	5								

* Population Apr. 15, 1910; no estimate made.

FOREIGN REPORTS.

AUSTRIA-HUNGARY.

Cholera.

Cholera has been notified in Austria-Hungary as follows: Austria, August 15 to 28, 1915, 8,414 cases with 4,996 deaths, of which 8,223 cases with 4,969 deaths occurred among the civil population; Bosnia-Herzegovina, August 15 to 21, 1915, 7 cases; Croatia-Slavonia, September 20 to 27, 1915, 9 cases with 4 deaths.

Cholera Carriers.

During the two weeks ended August 28, 1915, 13 cholera carriers were found in Bosnia-Herzegovina.

Smallpox.

During the period from August 1 to September 4, 1915, 2,678 cases of smallpox were notified in Austria. The cases occurred mainly among the civil population.

Typhus Fever.

During the period from August 29 to September 18, 1915, 425 cases of typhus fever were notified in Austria-Hungary.

JAPAN.

Typhus Fever—Hakodate.

During the week ended October 23, 1915, one case of typhus fever was reported at Hakodate, Japan.

MEXICO.

Typhus Fever—Mexico City, Puebla, and San Luis Potosi.

Typhus fever was reported present at Mexico City, Puebla, and San Luis Potosi, Mexico, November 14, 1915.

TYPHUS FEVER.

Reports Received During Week Ended Dec. 3, 1915.¹

Place.	Date.	Cases.	Deaths.	Remarks.
Austria-Hungary:				
Austria.....	Aug. 29-Sept. 18....	425		
Dutch East Indies:				
Java.....	Sept. 9-Oct. 4.....	91	14	
Batavia.....	Sept. 14-Oct. 4.....	47	5	
Egypt:				
Alexandria.....	Oct. 15-21.....	1	1	In prison camps.
Germany.....	Sept. 19-26.....	11		
Great Britain:				
Glasgow.....	Oct. 31-Nov. 6....	1		
Russia:				
Petrograd.....	Oct. 3-9.....	1		
Riga.....	Oct. 12-18.....	16		
Switzerland:				
Geneva.....	Oct. 10-16.....	1		

Reports Received from June 26 to Nov. 26, 1915.

Place.	Date.	Cases.	Deaths.	Remarks.
Austria-Hungary:				
Austria.....	Apr. 25-May 22....	1,212		Mainly among soldiers, prisoners of war, and persons from Galicia; 6 among the civil population, of which 1 in Vienna.
Do.....	June 6-Aug. 28....	4,150		
Bosnia-Herzegovina.....	May 2-15.....	64		
Hungary—				Mainly among military.
Budapest.....	May 16-Sept. 11....	27	7	
Azores:				
Terceira.....	May 23-29.....	1		July 24, 1915; present.
Canada:				
Ontario—				
Kingston.....	Aug. 22-28.....	1	1	
Canary Islands:				
Santa Cruz de Tenerife....	May 16-Sept. 11....		3	
China:				
Antung.....	June 29-Oct. 24....	6	2	On Eastern Chinese Ry. Present.
Hankow.....	July 4-10.....		1	
Harbin.....	July 5-11.....	1		
Hungtaohotze Station.....	Apr. 19-25.....	1		
Mukden.....	June 6-July 3.....			
Tientsin.....	.....do.....		1	
Cuba:				
Santiago.....	July 4-10.....	2	2	
Curacao.....	Aug. 8-14.....	4	1	
Dominican Republic:				
Santo Domingo.....	July 19-Aug. 31....		2	
Dutch East Indies:				
Java.....	Apr. 25-Sept. 13....	111	13	
Batavia.....	June 6-Sept. 13....	60	11	
Samarang.....	Sept. 5-11.....	1	1	
Egypt:				
Alexandria.....	May 21-Oct. 14....	164	49	
Cairo.....	May 7-July 15....	251	259	
Port Said.....	.....do.....	10	8	
France:				
La Rochelle.....	July 11-17.....	1	1	
Germany.....	May 16-22.....	12		In German soldiers and 1 prison-camp employee; among prisoners of war in 14 districts and in Saxony and Hesse. Among military and prisoners.
Do.....	June 6-26.....	23		
Do.....	June 27-Sept. 18....	147		
Aix la Chapelle.....	May 30-June 5.....		1	
Bavaria.....	July 11-Aug. 7.....	3		
Berlin.....	Aug. 22-28.....	1		
Bremen.....	May 30-June 12....	1	1	
Breslau.....	May 30-Aug. 7.....	6		
Bromberg—				
Government district...	July 18-Aug. 28....	10		
Cassel—				
Government district...	July 18-24.....	1		
Do.....	June 6-26.....	23		
Do.....	June 27-Sept. 18....	147		
Aix la Chapelle.....	May 30-June 5.....		1	

¹ From medical officers of the Public Health Service, American consuls, and other sources.

TYPHUS FEVER—Continued.

Reports Received from June 26 to Nov. 26, 1915—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Germany—Continued.				
Erfurt—				
Government district...	July 11-17.....	1	.....
Frankfurt—				
Government district...	July 18-24.....	1	.....
Hamburg.....	July 25-31.....	1	1	
Königsberg—				
Government district...	June 6-Sept. 4.....	5	.....
Leipzig.....	June 6-12.....	.....	1	
Merseburg—				
Government district...	July 25-31.....	1	.....
Posen.....	Aug. 29-Sept. 4.....	.....	.....	In prison camp.
Saxe-Weimar.....	July 11-17.....	10	.....	At Jena.
Saxony.....	July 18-24.....	27	.....
Stettin—				
Government district...	July 25-31.....	1	.....
Great Britain and Ireland:				
Cork.....	Aug. 22-28.....	1	.....
Dublin.....	May 23-July 31.....	7	.....
Glasgow.....	May 29-Aug. 21.....	3	.....
Liverpool.....	Oct. 10-23.....	2	1	
Newcastle.....	June 27-July 3.....	1	.....
Greece:				
Athens.....	June 14-July 19.....	.....	4	
Saloniki.....	May 30-Oct. 2.....	.....	253	
Italy:				
Florence.....	May 1-31.....	5	1	
Turin.....	May 17-23.....	1	.....
Japan:				
Tokyo.....	June 7-Sept. 3.....	3	.....
Hakodate.....	Aug. 29-Sept. 4.....	1	.....
Nagasaki.....	Oct. 18-24.....	8	.....
Mexico:				
Aguascalientes.....	June 21-Nov. 7.....	.....	7	
Mexico City.....	Aug. 28.....	1	1	
Russia:				
Moscow.....	May 2-Oct. 9.....	355	64	
Petrograd.....	May 9-Sept. 25.....	28	7	
Riga.....	Mar. 1-Aug. 7.....	7	1	
Vladivostok.....	June 15-Aug. 28.....	4	1	
Warsaw.....				Sept. 27-Oct. 31, 1914: Cases, 31; Nov. 1-28, 1914: Cases, 31; deaths, 1. Maximum inci- dence, Nov. 22-28: Cases, 20; deaths, 1.
Serbia.....	Apr. 27.....			Prevalent.
Spain:				
Madrid.....	June 1-Aug. 31.....		4	
Sweden:				
Stockholm.....	Sept. 19-Oct. 16.....	5	.....
Switzerland:				
St. Gall.....	July 25-Sept. 11.....	3	.....
Zurich.....	May 30-Oct. 23.....	3	.....
Turkey in Asia:				
Adana.....	May 9-July 10.....			Present.
Beirut.....	May 27-Sept. 4.....	8	2	
Harput.....	Apr. 1-30.....			Do.
Jaffa.....	Apr. 25-Sept. 11.....	20	11	July 31, present in vicinity.
Mersina.....	May 9-29.....	2	2	
Tarsus.....	May 9-July 10.....			Present.
Trebizond.....				October, 1914 - May 22, 1915; 6,000 fatal cases (estimated).
Tripoli.....	May 9-15.....	1	1	

CHOLERA, YELLOW FEVER, PLAGUE, AND SMALLPOX.**Reports Received During Week Ended Dec. 3, 1915.¹****CHOLERA.**

Place.	Date.	Cases.	Deaths.	Remarks.
Austria-Hungary:				
Austria.....	Aug. 15-28.....	8,414	4,996	Aug. 15-28, 13 bacilli carriers.
Bosnia-Herzegovina.....	Aug. 15-21.....	7	.....
Croatia-Slavonia.....	Sept. 20-27.....	9	4	
Dutch East Indies:				
Java.....	Sept. 14-Oct. 4.....	75	43	
Batavia.....	.....do.....	21	19	
Brobes.....	Sept. 16-30.....	4	4	
Germany:				
Gumbinnen, Government district.....	Sept. 19-25.....	2	.....	In prison camps.
Murienerwerder, Government district.....	.....do.....	2	.....
Stettin, Government district.....	.....do.....	3	.....

PLAGUE.

Dutch East Indies:				
Java—				
Kediri residency.....	Aug. 28-Oct. 7....	246	243	
Madison residency.....	Aug. 27-Sept. 3....	3	2	
Pasaroean residency.....	Aug. 28-Oct. 7....	32	37	
Surabaya residency.....	.....do.....	21	21	
Surabaya.....	Sept. 4-30.....	6	6	
Surakarta residency.....	Aug. 28-Oct. 7....	143	138	
India:				
Bombay.....	Oct. 9-16.....	8	8	
Rangoon.....	Oct. 3-9.....	6	5	

SMALLPOX.

Australia:				
New South Wales—				
Newcastle district.....	Oct. 15-21.....	22	.....
Austria-Hungary:				
Austria.....	Aug. 1-Sept. 4....	2,678	.....
Canada:				
Quebec—				
Montreal.....	Nov. 14-20.....	1	.....
Ceylon:				
Colombo.....	Oct. 2-9.....	1	1	
Dutch East Indies:				
Java.....	Sept. 9-Oct. 11....	639	• 121	
France:				
Paris.....	Oct. 10-16.....	1	.....
Germany:				
Hildesheim, Government district.....	Sept. 26-Oct. 2....	1	.....
Oppeln, Government district.....	.....do.....	1	.....
India:				
Bombay.....	Oct. 9-16.....	6	2	
Madras.....	.....do.....	7	3	
Rangoon.....	Oct. 3-9.....	2	2	
Martinique:				
Fort de France.....	Oct. 26.....	5	.....	On S. S. Niagara from Bordeaux, Oct. 13, 1915.
Mexico:				
Aguascalientes.....	Nov. 8-14.....	3	.....	In group arrived from San Luis Potosi.
Nuevo Laredo.....	Nov. 16.....	2	.....
Tampico.....	Oct. 21-30.....	3	.....
Vera Cruz.....	Nov. 1-7.....	14	10	
Portugal:				
Lisbon.....	Oct. 31-Nov. 6....	6	.....
Russia:				
Petrograd.....	Oct. 3-9.....	11	3	
Riga.....	Oct. 12-18.....	1	.....

¹ From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, YELLOW FEVER, PLAGUE, AND SMALLPOX—Continued.

Reports Received from June 26 to Nov. 26, 1915.

CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
Austria-Hungary.....				July 11-Aug. 15, 1915: Cases, 11,844; deaths, 7,421.
Austria.....	May 2-Aug. 14.....	13,708	6,326	July 11-Aug. 7, 1915: Cases, 11,928; deaths, 5,839.
Adelsberg.....	Sept. 19-25.....	2		
Lailbach.....	do.....	15		
Trieste.....	June 27-Oct. 2.....	15	7	4 carriers.
Vienna.....	May 9-15.....	9	3	Among soldiers and prisoners.
Bosnia-Herzegovina.....	Apr. 15-July 31.....	311	140	202 cholera carriers. July 18-Aug. 7, 1915: Cases, 146; deaths, 86.
Croatia-Slavonia.....	May 3-Aug. 29.....	983	408	14 among soldiers. July 26-Aug. 16, 1915: Cases, 121; deaths, 180.
Hungary.....	Apr. 26-Aug. 29.....	2,631	1,362	May 16-23; 5 additional cases notified. July 12-Aug. 15, 1915: Cases, 2,319; deaths, 1,266.
Budapest.....	June 28-Oct. 9.....	5	2	To Sept. 9, 1915, 6 cases; 5 deaths; 30 miles from Sandakan.
Borneo.....				Epidemic.
Bandjermasin.....	Aug. 13.....			On Sandakan Bay.
Bude.....	Aug. 22-28.....	8	2	Within jail limits.
Sandakan.....	July 18-31.....	7	5	
Ceylon.....				
Colombo.....	Apr. 25-May 22.....	8	1	
China.....				
Hongkong.....	May 2-Sept. 18.....	2	2	
Dutch East Indies.....				
Java.....	Sept. 1-13.....	118	69	Sept. 3, 1915: Epidemic.
Batavia.....	Apr. 25-Sept. 13.....	85	70	
Cerihon.....	Aug. 22-28.....	7	6	
Germany.....	July 24-Aug. 14.....	392	54	
Ahlen.....	Sept. 5-11.....	1		
Allenstein.....	Aug. 22-28.....	1		
Altma.....	Oct. 2-9.....	1		Present Oct. 17-23.
Berlin.....	July 18-Aug. 7.....	3	2	Among soldiers. Present Sept. 11.
Do.....	Oct. 17-23.....	2	2	Civilian.
Berlitz.....	July 18-24.....	1		Among soldiers.
Brandenburg on the Oder.....	Aug. 15-21.....	2	1	
Breslau.....	July 18-Oct. 12.....	5	1	3 military.
Bromberg.....	July 25-Aug. 28.....	2		Among soldiers.
Canstatt.....	do.....	1		Do.
Government districts—				
Arnsberg.....	Aug. 2-14.....	3	1	
Breslau.....	June 13-Aug. 14.....	6		Present in prison camps Sept. 11.
Bromberg.....	Aug. 8-21.....	2	1	Do.
Frankfort.....	June 13-Aug. 28.....	2		
Gumbinnen.....	do.....	5	1	
Konigsberg.....	Aug. 8-28.....	4	8	
Koslin.....	June 13-Aug. 28.....	4	3	
Liegnitz.....	Aug. 1-7.....	1	1	
Luneburg.....	do.....	1		Do.
Magdeburg.....	June 13-Aug. 21.....	603	116	
Marlenwerder.....	Aug. 8-14.....	12		
Merseburg.....	Aug. 1-7.....	2	1	
Minden.....	Sept. 11.....	1		
Munster.....	June 13-Sept. 18.....	38	5	Do.
Oppeln.....	June 13-Aug. 21.....	4	1	Do.
Potsdam.....	Aug. 1-7.....	2		
Stade.....	Aug. 1-Sept. 18.....	11	2	
Stettin.....	June 13-Aug. 7.....	1		
Wiesbaden.....	July 18-Sept. 4.....	19	8	
Danzig.....	Aug. 15-28.....	17	7	
Danzig-Troyl.....	Aug. 22-Sept. 18.....	1	2	
Erfurt.....	Aug. 22-28.....	2		
Frankfort on Oder.....	Aug. 8-14.....	4	4	Aug. 15-21, 1915; 1 case at Klotzsch.
Furstenwalde and Klotzsch.....	Aug. 1-14.....	4		
Hamburg.....	July 25-31.....	1		Among soldiers.
Hanover.....	Sept. 5-23.....	7		Civilians.
Hermannshöhe.....	June 13-July 2.....	1		
Jagendorf.....	Oct. 2-9.....	3	1	
Kehl.....	Sept. 25-Oct. 2.....	1	1	
Kiel.....	Sept. 12-18.....	1	1	Civilian.
Kosel.....	Oct. 2-9.....	1		
Kronshagen.....	July 25-31.....	1		Among soldiers.
Landsberg.....	do.....	1		Do.
Leipzig.....	Oct. 17-23.....	1		Present.
Marggrabowa.....	Sept. 5-11.....	1	1	Civilian.
Niederzaden.....				

CHOLERA, YELLOW FEVER, PLAGUE, AND SMALLPOX—Continued.

Reports Received from June 26 to Nov. 26, 1915—Continued.

CHOLERA—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Germany—Continued.				
Patschkau.....	July 18-24.....	1	.....	Among soldiers.
Posen.....	July 25-31.....	1	.....	Do.
Rosenberg.....	June 13-July 2....	1	.....
Sachsenhausen.....	do.....	1	1	
Saxony, Kingdom.....	Aug. 15-28.....	2	.....
Schneidemühl.....	July 25-31.....	1	.....	Do.
Silesia.....	July 3-17.....	5	.....
Slaventzitz.....	June 13-July 2....	1	.....
Sommerfeld.....	July 18-24.....	1	.....	Do.
Spandau.....	July 25-31.....	1	.....	Do.
Striegan.....	July 18-24.....	1	1	Do.
Thorn.....	Sept. 19-25.....	2	.....	Civilians.
Tilsit.....	do.....	2	.....	Do.
Treptow.....	do.....	2	.....	Do.
Hawaii:				
Kukalau.....	Nov. 16.....	1	1	
India:				
Akyab.....	May 16-July 31....	.....	7	
Basseln.....	Apr. 18-July 31....	.....	34	
Bombay.....	June 6-Sept. 4....	9	8	
Calcutta.....	Apr. 25-Sept. 18...	.....	228	
Henzada.....	Aug. 1-21.....	.....	21	
Karachi.....	Aug. 1-7.....	1	1	
Madras.....	May 2-Sept. 18....	20	11	
Madras district.....	Sept. 5-Oct. 11....	11	8	
Mandalay.....	Aug. 29-Sept. 18...	.....	244	
Mergul.....	Aug. 15-Sept. 11...	.....	93	
Myingyan.....	July 25-Sept. 11...	1	33	
Pakokku.....	Aug. 8-Sept. 11....	.....	71	
Pegu.....	July 4-10.....	1	.....
Rangoon.....	Apr. 24-Sept. 11...	17	16	
Toungoo.....	Sept. 12-18.....	.....	2	
Indo-China.....				Jan. 1-31, 1915: Cases, 284; deaths, 178.
Provinces—				
Anam.....	Jan. 1-Feb. 28.....	9	5	
Cochin China.....	do.....	621	297	
Laos.....	Feb. 1-28.....	46	21	
Tonkin.....	Jan. 1-Feb. 28.....	84	39	
Baigon.....	May 2-Sept. 19....	1,322	829	
Italy:				
Leghorn.....	Aug. 11.....	1	.....
Venice.....	do.....	3	.....
Persia:				
Dilman.....	Sept. 16.....	.....	.....	Present.
Khol.....	do.....	.....	.....	Do.
Tabriz.....	Aug. 26-Sept. 15...	175	10	And vicinity.
Russia:				
Moscow.....	June 6-Oct. 9.....	315	110	
Serbia.....	June 25-July 2....	2	.....
Siam:				
Bangkok.....	Apr. 19-Sept. 4....	.....	9	
Straits Settlements:				
Singapore.....	May 9-Sept. 4.....	5	3	
Sumatra, island—				
Toba district.....	Apr. 12-June 26...	159	110	

YELLOW FEVER.

Brazil:				
Bahia.....	July 11-17.....	1	1	
Canal Zone:				
Balboa quarantine.....	Sept. 27-Oct. 25...	2	.....	In persons arrived from Buena-ventura, Colombia.

PLAGUE.

Argentina:				
Buenos Aires.....	Sept. 28.....	1	.....
Azores:				
Terceira, island.....	July 25.....	.....	.....	Present.
Bahrein, island.....	Apr. 1-30.....	.....	.....	Do.

CHOLERA, YELLOW FEVER, PLAGUE, AND SMALLPOX—Continued.

Reports Received from June 26 to Nov. 26, 1915—Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Brazil:				
Bahia.....	June 20-Oct. 9....	14	10	
Rio de Janeiro.....	Aug. 22-28.....	4	4	
Ceylon:				
Colombo.....	May 9-Oct. 2.....	52	40	
China:				
Amoy.....	May 2-June 5.....			Present. Present in Sio-Kho Valley, 60 miles inland.
Do.....	June 13-19.....			Increasing.
Do.....	June 20-26.....			40 deaths daily (estimated). At Kulan-su, international settlement, 1 case.
Do.....	June 27-Aug. 14.....			Present. July 4-17, 1915: Cases, 95 (estimated).
Hongkong.....	May 9-Oct. 2.....	75	69	Chinese.
Shanghai.....	Oct. 3-9.....		1	
Cuba:				
Habana.....	Aug. 15.....	1		
Dutch East Indies:				
Java.....				Jan. 1-Feb. 25, 1915: Cases, 2,094; deaths, 1,864. Aug. 8-14, 1915: Cases, 58; deaths, 57.
Do.....	Mar. 12-July 31.....	2,227	1,111	
Kediri residency.....	July 30-Aug. 26.....	211	200	
Madibeni residency.....	Mar. 12-July 15.....	5	5	
Paseroean residency.....	Mar. 12-Aug. 26.....	82	75	
Surabaya residency.....	Mar. 12-Sept. 2.....	67	67	
Surakarta residency.....	Mar. 12-Aug. 26.....	40	37	
Surabaya.....	Aug. 13-Sept. 9.....	6	6	
Ecuador:				
Guayaquil.....	May 1-31.....	1		
Egypt:				
Alexandria.....	May 21-Sept. 16.....	4	3	
Assiout, province.....	May 14-June 3.....	7	2	
Fayoum, province.....	May 14-Sept. 2.....	54	10	
Gallabeh, province.....	May 14-27.....	1		
Gizeh, province.....	Sept. 15-27.....	2	2	
Minieh, province.....	May 14-July 15.....	14	5	
Port Said.....	May 23-Sept. 4.....	13	6	
Greece:				
Salonica.....	Aug. 1-Oct. 11.....	14	13	Present, Oct. 23.
Hawaii:				
Panalo Camp.....	Oct. 30.....	1	1	
India:				
Bassein.....	Apr. 18-Sept. 4.....		71	
Bombay.....	May 2-Oct. 9.....	235	203	
Calcutta.....	Apr. 25-July 3.....		59	
Lenah.....	May 2-8.....	1		
Kanara.....	May 2-Oct. 9.....	644	560	
Madras presidency.....	Sept. 5-Oct. 11.....	380	272	
Mandalay.....	Apr. 25-Sept. 4.....		22	
Moulmein.....	May 23-July 24.....		9	
Myingyan.....	Apr. 5-17.....		1	
Pegu.....	Apr. 18-May 1.....		5	
Rangoon.....	Apr. 18-Oct. 2.....	203	245	
Toungoo.....	Apr. 25-May 1.....		38	
Indo-China:				
Saigon.....	May 9-Aug. 14.....	17	9	Jan. 1-31, 1915: Cases, 73; deaths, 58.
Provinces—				
Anam.....	Jan. 1-Feb. 28.....	62	54	
Cambodia.....	do.....	37	34	
Cochin China.....	do.....	40	19	
Laos.....	Feb. 1-8.....	20	20	
Japan:				
Taiwan Island—				
Kagi.....	May 30-July 3.....	7	7	
Toyo.....	May 31-Aug. 8.....	9	5	
Mauritius.....	June 14-Aug. 19.....	5		
Persia:				
Mohammerah.....	Apr. 10-June 1.....	3		
Peru:				
Callao.....	May 3-Oct. 3.....	6		
Canal.....	Sept. 13-Oct. 3.....	4		
Chiclayo.....	Aug. 16-Sept. 12.....	4		Cases, 287; deaths, 140.
Ferrenafe.....	Aug. 16-Oct. 3.....	3		
Lima (city).....	May 3-Oct. 3.....	13		
Mollendo.....	do.....	3		
Salaerry.....	Apr. 26-May 27.....	2		May 30, vicinity.
San Pedro.....	Aug. 16-Oct. 3.....	7		May 30, 7 cases in hospital.
Trujillo.....	May 3-Oct. 3.....	9		

CHOLERA, YELLOW FEVER, PLAGUE, AND SMALLPOX—Continued.**Reports Received from June 26 to Nov. 26, 1915—Continued.****PLAGUE—Continued.**

Place.	Date.	Cases.	Deaths.	Remarks.
Peru—Continued.				
Tumbes.....	Sept. 13-Oct. 3....	6		
Provinces—				
Ancachs.....	Jan. 1-Dec. 31, 1914.	34	20	
Arequipa.....	do.....	54	24	
Cajamarca.....	do.....	16	7	
Callao.....	do.....	14	8	
Lambayeque.....	do.....	107	47	
Libertad.....	do.....	335	176	
Lima.....	do.....	106	48	
Piura.....	do.....	94	55	
Ancachs.....	Jan. 1-June 30, 1915	6	4	
Arequipa.....	do.....	19	11	
Callao.....	do.....	22	8	
Junin.....	do.....	1	1	
Lambayeque.....	do.....	68	24	
Libertad.....	do.....	67	42	
Lima.....	Jan. 1-Sept. 12....	56	33	
Piura.....	Jan. 1-June 30, 1915	44	27	
Siam:				
Bankok.....	July 4-Aug. 7.....	3	2	
Straits Settlements:				
Singapore.....	Apr. 25-June 5....	4	1	
Turkey in Asia:				
Bagdad.....	May 2-July 26....	768	574	Present.
Chios, island.....	Aug. 6.....			
Union of South Africa:				
Cape Province—				
Tarka, district.....	June 2-16.....	2	1	
Wodehouse, district.....	June 5.....	2	2	At Dordrecht.
Zanzibar:				
Zanzibar.....	Mar. 1-31.....		1	

SMALLPOX.

Arabia:				
Aden.....	Aug. 13-25.....	1	1	
Australia:				
New South Wales—				
Greta district.....	Oct. 1-14.....	3		
Newcastle district.....	Aug. 27-Oct. 14....	134		June 10-Aug. 5: Cases, 17.
Cessnock.....	June 10-Aug. 2....	5		
Hamilton.....	July 16-22.....	1		
Islington.....	Aug. 3-19.....	1		
Kurri Kurri.....	May 26-July 22....	8		
Moreweather.....	Aug. 3-19.....	1		
Newcastle.....	Aug. 20-25.....	1		
Plat'sburg.....	July 16-22.....	1		
Standford Morthyr.....	June 25-July 24....	1		
Wickham.....	Aug. 3-19.....	1		
Sydney.....	Aug. 27-Sept. 30....	2	2	
Port Stephens district.....	Oct. 1-14.....	1		
Scone district.....	do.....	1		
Werris Creek district.....	do.....	1		
Victoria—				
Melbourne.....	Apr. 20.....	1		At Point Nepean quarantine station, from S. S. Lord Derby, from Rangoon.
Western Australia—				
Freemantle.....	Apr. 27.....	1		At Woodmans Point quarantine station, from S. S. City of Baroda, from Calcutta via Colombo.
Austria-Hungary:				
Austria.....	May 2-July 31.....	4,533		
Dalmatia, Province.....	May 2-8.....	1		
Vienna.....	May 2-Oct. 9.....	40	10	Aug., 1914-May 8, 1915: Cases, 1,387; deaths, 316. May 9-15, 1915: Cases, 23. June 6-12: Cases, 13.
Hungary—				
Budapest.....	May 2-Oct. 16....	426	1	
Prague.....	Aug. 1-21.....	5		

CHOLERA, YELLOW FEVER, PLAGUE, AND SMALLPOX—Continued.

Reports Received from June 26 to Nov. 26, 1915—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Brazil:				
Bahia.....	Sept. 26-Oct. 2.....		1	
Rio de Janeiro.....	Apr. 18-Oct. 9.....	272	81	
Rio Grande do Sul.....	Sept. 2.....			Epidemic.
Canada:				
Alberta—				
Edmonton.....				Epidemic 30 miles south; closed Aug. 14, 1915: Cases, 100 (estimated).
Ontario—				
Fort William and Port Arthur.....	Oct. 17-Nov. 6.....	5		
Hamilton.....	June 1-30.....	2	4	
Peterborough.....	July 10-17.....		1	
Sarnia.....	June 13-19.....	1		
Toronto.....	June 6-Aug. 7.....	7		
Quebec—				
Montreal.....	June 13-Oct. 30.....	26		
Sherbrooke.....	June 1-30.....		1	
Canary Islands:				
Santa Cruz de Tenerife.....	July 18-24.....		1	
Ceylon:				
Colombo.....	May 2-Oct. 2.....	217	51	
China:				
Amoy.....	July 4-Aug. 28.....			Present.
Chungking.....	May 23-June 19.....			Do.
Foochow.....	May 9-22.....			Do.
Harbin.....	May 3-9.....	1		
Hongkong.....	May 9-Aug. 7.....	9	6	
Manchuria Station.....	June 21-27.....	2		Eastern Chinese Railway.
Nanking.....	June 20-Sept. 4.....			Present.
Shanghai.....	May 9-Oct. 9.....	6	5	Natives.
Tientsin.....	May 16-22.....		1	
Dutch East Indies:				
Java.....	Apr. 18-Sept. 13.....	1,119	242	
Batavia.....	Apr. 25-Sept. 13.....	8	31	Do.
Egypt:				
Alexandria.....	May 21-Sept. 9.....	42	14	
Cairo.....	Apr. 30-July 15.....	18	8	
Germany.....				Total May 16-Sept. 11, 1915, 47 cases.
Berlin.....	Aug. 22-28.....	1		
Hamburg.....	June 6-12.....	1		
Government districts—				
Allenstein.....	June 13-19.....	1		
Arnsberg.....	do.....	1		
Breslau.....	June 20-July 3.....	1		
Danzig.....	June 13-July 31.....	3		
Gumbinnen.....	May 23-29.....	2		
Marlenwerder.....	May 23-July 31.....	3		
Merseburg.....	June 20-July 3.....	1		
Oppeln.....	May 16-Sept. 18.....	11		
Posen.....	May 30-June 5.....	3		
Potsdam.....	June 13-Aug. 14.....	4		
Wiesbaden.....	Aug. 29-Sept. 4.....	1		
Great Britain:				
Bristol.....	Mar. 21-May 22.....	29	7	1 vessel from Bombay. Maximum incidence, Apr. 4-17; Cases, 22; deaths, 2.
London.....	May 30-June 12.....	3		
Greece:				
Saloniki.....	May 23-29.....		1	
India:				
Bassein.....	May 2-8.....		1	
Bombay.....	May 2-Oct. 9.....	206	176	
Calcutta.....	Apr. 25-Aug. 14.....		257	
Karachi.....	May 2-Sept. 18.....	30	8	
Madras.....	May 2-Oct. 9.....	83	39	
Moulmein.....	May 23-29.....		1	
Pegu.....	Apr. 18-June 12.....	1	1	May 1-31, 1915: Cases, 37; deaths, 14.
Rangoon.....	Apr. 18-Oct. 2.....	172	68	
Indo-China:				
Provinces—				
Anam.....	Jan. 1-31.....			Present.
Cambodia.....	Jan. 1-Feb. 28.....	32	5	
Cochin China.....	Jan. 1-31.....	12		
Laos.....	Feb. 1-28.....	6		
Tonkin.....	Jan. 1-Feb. 28.....	66	12	
Saigon.....	May 23-July 10.....	2	2	

CHOLERA, YELLOW FEVER, PLAGUE, AND SMALLPOX—Continued.**Reports Received from June 26 to Nov. 26, 1915—Continued.****SMALLPOX—Continued.**

Place.	Date.	Cases.	Deaths.	Remarks.
Italy:				
Milan.....	May 1-31.....	1		
Turin.....	Aug. 16-29.....	3		
Japan:				
Taiwan, island.....	May 23-29.....	1		
Mexico:				
Acapulco.....	July 14-Sept. 5.....		3	
Aguascalientes.....	June 7-Nov. 7.....		34	
Columbia.....	Sept. 15.....	2		
Frontera.....	May 23-Oct. 30.....	173	68	
Mazatlan.....	June 23-July 13.....		3	
Monterey.....	June 14-Oct. 31.....	11		
Nuevo Laredo.....	Sept. 11.....	2		In persons from San Luis Potosi,
Progreso.....	June 6-July 24.....	7	1	22.
Salina Cruz.....	June 1-Oct. 15.....	5	1	Soldier from San Geronimo.
Tampico.....	Aug. 11-Oct. 20.....		7	
Vera Cruz.....	June 7-Oct. 30.....	141	69	
Portugal:				
Lisbon.....	May 23-Oct. 16.....	32		
Russia:				
Moscow.....	May 2-15.....	19	5	
Petrograd.....	May 8-Oct. 2.....	412	161	
Riga.....	May 9-Sept. 25.....	140	10	Mar. 1-31, 1915: Cases, 89; deaths,
				22.
Vladivostok.....	May 29-June 4.....	1		Sept. 27-Oct. 31, 1914: Cases, 51;
				deaths, 16. Nov. 1-28, 1914:
				Cases, 70; deaths, 23.
Serbia.....	Apr. 21-May 3.....	356		
Siam:				
Bangkok.....	Aug. 7-Sept. 4.....		1	
Spain:				
Madrid.....	June 1-Aug. 31.....		13	
Malaga.....	Aug. 1-31.....	1		
Seville.....	May 1-Sept. 30.....		11	
Valencia.....	May 30-Oct. 23.....	138	17	
Straits Settlements:				
Penang.....	Apr. 25-May 15.....	6	2	
Singapore.....	May 23-Sept. 25.....	2		
Switzerland:				
Basel.....	May 16-Oct. 16.....	43		
Geneva.....	Sept. 26-Oct. 2.....	1		
Turkey in Asia:				
Bagdad.....	May 2-8.....			Present.
Beirut.....	May 16-Sept. 25.....	134	55	
Haifa.....	May 3-July 25.....	9	1	
Jaffa.....	May 9-29.....	2		
Mersina.....	May 30-June 5.....	1		
Tripoli.....	May 2-8.....			Do.
Union of South Africa:				
Cape Town.....	June 24-July 30.....	3		
East London.....	Aug. 22-28.....	1		
Somerset East.....	Sept. 21.....			About 20 cases.

SANITARY LEGISLATION.

COURT DECISIONS.

TEXAS COURT OF CIVIL APPEALS.

Sewage-Disposal Plant—Injunction Granted Prohibiting the Erection of an Improperly Planned Septic Tank.

CARDWELL et al. v. AUSTIN, 168 S. W. Rep., 385. (June 2, 1914.)

The proper disposal of sewage is of vital importance to cities and towns; and where sewage can be purified and discharged practically free from odor and without seriously contaminating streams, the mere fact that a septic tank near residences would produce mental annoyance or would lessen the value of property ought not to prevent the establishment and operation of such a tank.

In the construction of a septic tank for the purifying of sewage a city must exercise care to build it of such dimensions and character as to prevent the escape of gases and foul odors therefrom in such volume as to create a nuisance to any citizen.

The evidence showed that a proposed septic tank was not properly planned, and that it would be offensive. Its erection was enjoined, but a permanent injunction prohibiting the erection of any septic tank at the proposed location was refused.

Appellee, William E. Austin, brought suit against the city of Bay City, Tex., and W. H. Cardwell, seeking to enjoin the defendants from constructing and maintaining upon a tract of 1.6 acres of land owned by the city a septic concentration tank to be used in connection with a sewer system in said city, owned by defendant Cardwell and constructed by him under a franchise granted by the city. The tank was to empty into a small stream near plaintiff's residence.

The court below issued an injunction permanently restraining the defendants from "constructing, maintaining, and operating any septic tank constituting a concentration tank for sewage material upon the tract of 1.6 acres of land, * * * and from the use of said stream as a conduit and channel for the effluent of said tank, and the pollution of such stream thereby at any point at or near plaintiff's property."

After discussing the effect of certain State statutes upon the jurisdiction of the court and the right to issue an injunction in this case, the court (McMeans, J.) continued as follows:

"On October 14, 1913, the city of Bay City by an ordinance granted a franchise to H. D. Cardwell, his successors, and assigns, to construct, maintain, and operate a sanitary sewer system in the city of Bay City for a term of 50 years, with the privilege of using the streets, alleys, and public grounds for the purpose of laying its pipes, conduits, etc., the city reserving the right and option to purchase the sewer system from the grantee at any time after its completion, at a price agreed upon and named in the ordinance. It was provided that the terminal of the system should be a septic tank located at or near the south end of I Avenue, at a point near Cottonwood Creek or some other available place, and that the city should furnish the site thereof to the grantee. It was further provided that the septic tank should be 18 feet wide, 60 feet long, and 8 feet deep.

The city designated for the location of the tank a tract of 1.6 acres of land owned by it. This tract was upon or near the west bank of Cottonwood Creek, and the proposed tank was to be located on a spot about 520 feet in a southwesterly direction from plaintiff's house, in which he and his family resided. The discharge pipe from the tank was to be laid to a point in Cottonwood Creek about 576 feet almost south from plaintiff's residence.

"It was shown by the testimony that the sewer system was intended to accommodate about 1,500 users, and that the amount of sewage flowing into the tank per day would be from 30 to 50 gallons per capita. The defendant Cardwell testified that a tank of the dimensions specified in the ordinance was too small for the purpose to which it would be applied, and that he intended to enlarge it by making it 2 feet wider and 2 feet deeper.

"There was testimony from which the trial judge could reasonably have concluded that a septic tank of the dimensions of the one proposed would be sufficient to purify the sewage flowing into it; and, had the court so found, his finding would have been approved. But there was also testimony which warranted the court in finding that the proposed tank was too small and that it would not purify the sewage flowing into it, and in consequence foul, disagreeable, and unwholesome odors would be given off therefrom in such volume and of such character as to create a nuisance, and to interfere with the comfortable use and enjoyment by plaintiff of his home and to render his house practically uninhabitable.

"The city of Bay City is incorporated under general laws and under its charter has authority to provide a sewer system for the city; but this authority must be exercised in a proper manner. It has no authority to create or maintain a nuisance, and in the construction of a septic tank for the purifying of sewage it must exercise care to build one of such dimensions and character as to prevent gases and foul odors to escape therefrom in such volume as to create a nuisance to any of its citizens. (*Donovan v. Royal*, 26 Tex. Civ. App., 248; 63 S. W., 1054.)

"We think that under the facts proven the court properly granted the injunction to prevent the construction and operation of the proposed septic tank. But the judgment went further than this, and enjoined the construction and operation of any tank on the 1.6 acres furnished by the city. The testimony is practically undisputed that septic tanks are efficient in purifying sewage when constructed in a proper manner and of proper dimensions. Appellants' witness, Dr. F. J. Slataper, a bacteriologist, testified to this fact, and further that water flowing from a discharge pipe from such a tank was fit for domestic use. In this he was contradicted. He further testified that no disagreeable odors or gases would be given off from such a tank if properly constructed; that the size required to purify a given amount of sewage is a matter of engineering, with which he was not familiar. Plaintiff's witness, E. L. Dormant, a sanitary engineer of large experience, after testifying that the tank proposed to be constructed would be too small to purify the sewage that would flow into it, and that foul gases and odors would in consequence be given off of such volume as to be a nuisance to persons living as near as plaintiff, testified:

"It is possible to construct a filter on the inside of the tank so as to absolutely eliminate odor if the tank is large enough. I will say that I would rather put the filter tank on the inside than on the outside, provided the tank is large enough. That is the only way to eliminate the large quantity of flies and odor."

"He further testified:

"Taking it all the year around, I think it is very safe to answer that you use 50 gallons per capita (per day) sewage for 2,500 people. * * * If you use a contact bed, that would require 2.10 of an acre, or approximately 8,000 square feet. If you use a filter bed

of charcoal and gravel instead of a contact bed, it takes the same area. If you use gravel and sand, it takes a large area. * * * It would not be possible to construct a septic tank without a contact bed or sprinkling filter without creating a nuisance.'

"It appears from the testimony generally that there is an odor inseparable from septic tanks; but we think the testimony conclusively proves that the odors thrown off from a septic tank of proper dimensions and of correct construction are of such small volume as not to be hurtful or annoying to one living as far away as the plaintiff from the proposed tank. We think therefore that the court, while correctly enjoining the construction and operation of the tank in question, was not warranted in perpetually enjoining the defendants from constructing and operating a septic tank of proper dimensions and construction, upon the 1.6 acres of land. The proper disposal of sewage is a question of vital importance to cities and towns, and where a method can be adopted by which sewage may be purified and discharged practically free from odor, or, applying the facts concretely, where the odor will not interfere with the comfortable use and enjoyment by plaintiff of his home, and where the effluent will not so contaminate the creek as to render it unfit for drinking water for stock, the mere fact that the proximity of the tank to plaintiff's residence would produce a degree of mental annoyance, or would tend to lessen the value of his property, ought not to prevent the establishment and operation of the tank on the 1.6-acre tract. If the market value is lessened thereby, and there is no annoyance other than mental disturbance due to the fact that the tank is in the vicinity, then plaintiff could be compensated in money for his damages thus sustained. We think that the judgment should be reformed by eliminating that part of the decree prohibiting defendants from constructing a septic tank of proper dimensions and construction upon the 1.6 acres, and that as thus reformed the judgment should be affirmed, and it has been so ordered. We have examined all of the appellants' assignments of error and are of the opinion that none of them points out errors requiring a reversal."

STATE LAWS AND REGULATIONS PERTAINING TO PUBLIC HEALTH.

COLORADO.

State Chemist—Appointment, Duties, and Salary—Assistant State Chemist. (Chap. 150, Act May 8, 1915.)

SECTION. 1. The head professor of the department of chemistry at the University of Colorado shall be State chemist of Colorado. The office and laboratory of the State chemist shall be in the department of chemistry at the University of Colorado.

SEC. 2. The salary of the State chemist shall be \$1,000 per year. The instructor in food and drug analysis in the department of chemistry in the University of Colorado shall be assistant State chemist and shall receive a salary of \$1,000 per year for the performance of such duties as shall be assigned to him by the State chemist. The State chemist and his assistant shall also be reimbursed all legitimate and necessary expenses incurred in the performance of the duties of the office of State chemist.

SEC. 3. It shall be the duty of the State chemist to make or cause to be made chemical analyses of all such samples of foods and drugs as may be collected for the purpose of analysis by the regular appointed inspectors under the supervision of the State pure food commissioner, and to make sanitary, chemical, and bacteriological analyses of samples of water from the water supply of towns or school districts upon the request of the authorities of the same, whenever such water supplies are suspected of being contaminated. The State chemist shall make full and complete written reports without unnecessary delay of such analysis; in the cases of foods and drugs, to the State pure food commissioner, and, in the case of waters, to the municipal health officers or other authorities concerned.

SEC. 4. By the authority of this act every certificate of analysis of foods, drugs, or water duly signed by the State chemist shall be presumptive evidence of the facts therein stated.

SEC. 5. For the purpose of carrying on the work of the office of State chemist there is hereby appropriated annually, out of any money in the State treasury not otherwise appropriated, the sum of \$2,500 to be apportioned as follows: Salary of State chemist, \$1,000; salary of one assistant State chemist, \$1,000; expenses, such as chemicals, supplies, express charges, and necessary traveling, \$500.

The auditor of State is hereby authorized to draw his warrants on the State treasurer in payment of the salaries and expenses of the office of State chemist as hereinbefore provided.

Mattresses—Manufacture and Sale. (Chap. 128, Act Apr. 9, 1915.)

SECTION 1. No person shall manufacture, sell, offer or expose for sale, in the regular course of trade, deliver or have in his possession with intent to sell or deliver in this State, in the regular course of trade, any mattress, pillow, cushion, muf bed, down quilt or bag containing hair, cotton, down, wool, shoddy wool,

cotton linters, feathers, or other material unless the same be branded or labeled so as to show kind and character of the materials used in the manufacture of the article to which the brand or label is attached. If the materials used in the manufacture of the article to which the label or brand is to be attached are entirely new, the brand or label shall consist of a plain print, in the English language, in large type, as follows: "The materials used in the manufacture of this mattress (or other article of bedding) are entirely new."

If the materials are secondhanded, the brand or label shall consist of a plain print, in the English language, in large type, as follows, to wit: "The materials used in the manufacture of this mattress (or other article of bedding) are secondhanded," with a specific statement of the kind and character of the secondhand materials used. Such brand or label shall be in the form of cloth tag, and shall be sewed to or otherwise securely attached to said article, and shall be in size not less than three inches long by two and one-half inches in width. It shall be unlawful for any person to remove, conceal, or deface any such brand or label for the purpose of deceiving a contemplated purchaser or other person. No person shall use, either in whole or in part, in the manufacture of any mattress or other article of bedding, any material which has been used in or has formed a part of any mattress or other article of bedding which has been used in or about a public or private hospital, or by or about any person having an infectious or contagious disease. It shall be unlawful for any person to sell, offer for sale, or have in his possession with intent to sell any mattress or other article of bedding which has been used in or about a public or private hospital or by or about any person having an infectious or contagious disease.

SEC. 2. A mattress within the meaning of this act shall be construed to include any quilted pad, stuffed with hair, cotton, shoddy wool, cotton linters, wool, feathers or other soft material to be used on a bed for sleeping or reclining purposes.

SEC. 3. The term "secondhanded" as used in section 1 of this act shall be held to include any material which has been used before in any of the articles above enumerated or in any article of household or wearing apparel, however afterwards treated.

SEC. 4. That the word "person" as used in this act shall be construed to mean and include a partnership, association, company, or corporation, as well as a natural person.

SEC. 5. A violation of any of the provisions of this act is hereby declared to be a misdemeanor. Any person who shall violate any of the provisions of this act shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punished, for the first offense, by a fine of not less than \$25 nor more than \$200 or by imprisonment in the county jail not exceeding three months, or by both such fine and imprisonment. And for a second offense by a fine of not less than \$200 nor more than \$500 or by imprisonment in the county jail not less than three months nor more than six months, or by both such fine and imprisonment.

Advertisements—Untrue, Deceptive, or Misleading, Prohibited. (Chap. 67, Act Apr. 9, 1915.)

SECTION 1. Any person, firm, corporation, or association who, with intent to sell or in any wise dispose of merchandise, securities, service, or anything offered by such person, firm, corporation, or association, directly or indirectly, to the public for sale or distribution, or with intent to increase the consumption thereof, or to induce the public in any manner to enter into any obligation relating thereto, or to acquire title thereto, or an interest therein, makes, publishes, disseminates, circulates, or places before the public, or causes, directly or indirectly,

to be made, published, disseminated, circulated, or placed before the public, in this State, in a newspaper or other publication, or in the form of a book, notice, handbill, poster, bill, circular, pamphlet, or letter, or in any other way, an advertisement of any sort regarding merchandise, securities, service, or anything so offered to the public, which advertisement contains any assertion, representation, or statement which is untrue, deceptive, or misleading, shall be guilty of a misdemeanor.

SEC. 2. On conviction of each and every offense, as herein above set forth, the violator shall be punished by a fine of not less than \$10 nor more than \$300, or by imprisonment in the county jail for a term not exceeding 30 days, or by both such fine and imprisonment.

SEC. 3. Nothing in this act shall be construed to apply to any proprietor or publisher of any newspaper or periodical who publishes or circulates any such advertisement without knowledge of the untruthful nature of such advertisement.

SEC. 4. Justices of the peace in their respective counties shall have jurisdiction over all causes arising out of the violation of this act.

IDAHO.

Privies and Toilets—Construction of. Manure—Care of. (Reg. Bd. of H., Oct. 5, 1915.)

RULE 35. All privies, toilets, and outhouses used for depositing human excreta must be made flyproof and protected as follows:

1. The roof shall be water-tight.
2. The house shall be without cracks through which flies may enter.
3. The door shall fit closely and be self-closing.
4. The openings on seats shall have hinged coverings.
5. The vault, whether pit, box, or tank, tub, pail, or other receptacle, shall be securely protected against flies.

6. All openings for ventilation, etc., shall be screened with wire netting.

Every person, whether as owner, tenant, employer, or agent, being in charge of any stable, barn, or other place where horses, mules, cows, or other live stock is [sic] kept shall at all times keep and maintain in or adjacent to said stable, barn, or other place a receptacle or box of sufficient dimensions to hold and contain all manure from said live stock; said receptacle or box shall be so constructed as to prevent any of the contents filtering through the bottom or sides and shall be covered with a fly-tight lid, which lid shall be kept closed at all times, except when it is necessary to open same to deposit or remove the manure from said receptacle or box.

The provisions of this regulation shall not apply to stables or places from which manure is removed each day.

The State sanitary inspector, county and local health officers will strictly enforce this regulation.

LOUISIANA.

Skimmed Condensed Milk—Sale of. (Reg. Bd. of H., June 15, 1915.)

Sanitary code regulation 225 was revised to read as follows:

"The sale of skimmed condensed milk in containers holding less than one-half gallon is forbidden: *Provided*, A hermetically sealed container holding less than one-half gallon may be sold if, in addition to a compliance with all existing laws, there appear on the principal label, in a conspicuous place, in letters not

smaller than those used in the direction for dilution, the words: 'Condensed skimmed milk should not be fed to babies, children, or invalids; it lacks the full food value of whole condensed milk.'

MAINE.

School Physicians—Appointment and Duties—Medical Inspection of Pupils. (Chap. 73, Act Mar. 16, 1909, as Amended by Chap. 174, Act Mar. 24, 1915.)

SECTION 1. The school committee of every city and town shall appoint one or more school physicians and shall assign one to the medical inspection of not over 1,000 pupils of the public schools within its city or town, and shall provide them with all proper facilities for the performance of their duties as prescribed in this act: *Provided, however,* The said committee has been so authorized by vote of town at regular town meeting or at a special town meeting called for that purpose.

SEC. 2. Every school physician shall make a prompt examination and diagnosis of all children referred to him as hereinafter provided; and such further examination of teachers, janitors, and school buildings as in his opinion the protection of the health of the pupils may require.

SEC. 3. The pupils so examined by school physicians when treatment is necessary shall not be referred to the school physicians for such treatment, except the school physician be the regular family physician of such pupil, but shall be referred to the regular family physician of such pupil through the parents or guardian.

SEC. 4. The school committee shall cause to be referred to a school physician for examination and diagnosis every child returning to a school without a certificate from the board of health or family physician after absence on account of illness or whenever in the judgment of the teacher the circumstances of the absence were such as to require such a certificate; and every child in the schools under its jurisdiction who shows signs of being in ill health or of suffering from infectious or contagious diseases, unless he is at once excluded from school by the teacher; except that in case of schools in remote and isolated situations the school committee may make such other arrangements as may best carry out the purposes of this act.

SEC. 5. The school committee shall cause notice of disease or defects, if any, from which any child is found to be suffering to be sent home to his parents or guardian. Whenever a child shows symptoms of smallpox, scarlet fever, measles, chicken pox, tuberculosis, diphtheria or influenza, tonsillitis, whooping cough, mumps, scabies, or trachoma he shall be sent home immediately or as soon as safe and proper conveyance can be found, and the board of health and superintendent of schools shall at once be notified.

SEC. 6. The school committee of every city or town shall cause every child in the public schools to be separately and carefully tested and examined at least once in every school year to ascertain whether he is suffering from defective sight or hearing or from any other disability or defect tending to prevent his receiving the full benefit of his school work, or requiring a modification of the school work in order to prevent injury to the child or to secure the best educational results. Tests of sight and hearing shall be made by the teachers or by the school physicians. The committee shall cause notice of any defect or disability requiring treatment to be sent to the parent or guardian of the child, and shall require a physical record of each child to be kept in such form as the State superintendent of public schools shall prescribe after consultation with the State board of health.

SEC. 7. The State superintendent of public schools shall prescribe, after consultation with the State board of health, the directions for tests of sight and hearing, and shall prescribe and furnish to the school committee suitable rules of instruction, test cards, blanks, record books, and other useful appliances for carrying out the purposes of this act. The State superintendent of public schools may expend during the year 1909 a sum not greater than \$500 for the purpose of supplying the material required for this act.

SEC. 8. Expenses which a city or town may incur by virtue of the authority herein vested in the school committee shall not exceed the amount appropriated for that purpose in cities by the city council and in towns by a town meeting. The appropriation shall precede any expenditure of any indebtedness which may be incurred under this act and the sum appropriated shall be deemed sufficient appropriation in the municipality where it is made. Such appropriation need not specify to what section of the act it shall apply and may be voted as a total appropriation to be applied in carrying out the purposes of this act.

SEC. 9. The provisions of this act shall apply only to cities and towns having a population of less than 40,000 inhabitants.

NEBRASKA.

Ophthalmia Neonatorum—Prevention of. (Chap. 196, Act Apr. 15, 1915.)

SECTION 1. *Physicians to use nitrate of silver on eyes of new-born babies.*—It shall be the duty of every physician in attendance upon any lying-in woman, either in hospital or the general practice, upon the delivery of any newly born child, to use in the eyes of said child one of the following preparations:

Nitrate of silver, 1 per cent to 4 per cent solution.

Protargol, 10 per cent to 40 per cent solution.

Argyrol, 40 per cent to 50 per cent solution.

No additional fee shall be charged by any physician for the furnishing or use of the preparations herein prescribed.

SEC. 2. *Penalty for failure to use.*—Any physician violating the provisions of this act shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in any sum not less than \$10 nor more than \$50, and his physician's license shall be subject to revocation by the State board of health.

Domestic Animals—Communicable Diseases—Appraisement of Animals Killed—Penalty for Importing or Harboring Diseased Animals. (Chap. 11, Mar. 15, 1915.)

SECTION 1. *Amendment.*—That sections 152 and 153, Revised Statutes of Nebraska for 1913 are hereby amended to read as follows:

152. SEC. 80. *Glandered horses and mules; killed how.*—Any horse or mule afflicted with glanders or duraine shall not be killed as such unless they have been inspected by the deputy State veterinarian or his assistant, and are pronounced by him diseased. Whenever any such animal becomes affected with glanders or duraine, its cash value, as the same would be were it not thus affected, shall be fixed within 24 hours before killing by appraisers chosen in the following manner: One appointed by the State veterinarian, one by the owner, and the third by the first two: *Provided*, In no case shall the appraised value of the glandered or durained horse or mule exceed \$200 for animals so killed; not to exceed two-thirds of said amount as appraised shall be paid to the owner by the State. In no case shall any such animal be so appraised or paid for unless it be at least one year old, and have been in good faith owned and kept within the State by one person, company or corporation for six months before the killing.

The award of the appraisers shall be certified by the deputy State veterinarian to the auditor of the State, who shall draw a warrant upon the State treasurer for two-thirds of the amount so appraised and certified, to be paid to the owner of the animal killed.

153. SEC. 81. *Same; penalty for harboring.*—Any owner of any domestic animal or any person, firm, company, or corporation having such animal or animals in charge who shall knowingly bring into the State any such domestic animal which is affected with any infectious or contagious disease, or shall knowingly keep or harbor such animal except for scientific or experimental purposes, shall be deemed guilty of a misdemeanor, and upon conviction shall be fined in any sum not less than \$100, nor more than \$2,000, or be imprisoned in the county jail not less than three nor more than six months, or both, at the discretion of the court.

SEC. 2. *Repeal.*—That said original sections 152 and 153, Revised Statutes of Nebraska for 1913, are hereby repealed.

Food, Drug, Dairy, and Oil Commissioner—Appointment and Duties. Deputy Commissioner—Appointment, Duties, and Salary. Inspectors—Appointment and Salaries. (Chap. 47, Act Apr. 16, 1915.)

SECTION 1. *Amendment.*—That section 2527 of the Revised Statutes of Nebraska for 1913 be amended to read as follows:

2527. SEC. 2. *Food commissioner; deputy; salary; qualifications; powers.*—The governor of this State is hereby made the food, drug, dairy, and oil commissioner, and there is hereby imposed upon him the duty of executing all the provisions of this chapter and of all other acts in force or which may be hereafter enacted relating to food, drug, dairy, and oil products and such other duties as may be imposed by law. The governor is hereby authorized to appoint a deputy commissioner who shall receive a salary of \$2,500 per annum and who shall hold his office at the pleasure of the governor. Said deputy shall have knowledge of chemistry, drugs, food products, dairy products, and oils. He shall from time to time promulgate such rules and regulations as are necessary and proper to promptly and effectively enforce the provisions of this chapter. In the performance of his duties he is authorized and empowered to examine under oath or otherwise any person he has reason to believe has knowledge of any unlawful operation or unsanitary condition of any creamery, public dairy, butter, cheese, or ice-cream factory, or of any place where foods are manufactured, produced, prepared, or offered for sale; to issue subpoenas for the appearance of witnesses and the production of books and papers and to administer oaths with like effect as is done in courts of law in this State. In the examination of any witness and in requiring the production of books, papers, and other evidence he shall have and exercise all of the powers of a judge, magistrate, or other officer in the taking of depositions or the examination of witnesses, including the power to enforce his orders by fine or commitment for refusal to answer or for the disobedience of any such order.

SEC. 2. *Amendment.*—That section 2528 of the Revised Statutes of Nebraska for 1913 be amended to read as follows:

2528. SEC. 3. *Inspectors; secretary; chemist; employees.*—The governor is authorized, upon the recommendation of the deputy commissioner, to employ and station not to exceed 16 inspectors, and during the months of May, June, July, August, and September in each year not to exceed 6 additional inspectors, which additional inspectors shall be persons of experience in dairy matters. Each of such inspectors shall hold his position at the pleasure of the governor and shall receive for his service not to exceed \$4 per day for each day actually and neces-

sarily engaged in discharging his duties for the first two years' service and not to exceed \$4.50 per day thereafter and, in addition thereto, his actual and necessary traveling expenses.

The governor is hereby authorized to appoint a secretary to the deputy commissioner at a salary not to exceed \$90 a month, a stenographer at a salary not to exceed \$70 a month, a clerk at a salary not to exceed \$70 per month, and a chemist, who shall be known as the State chemist, at a salary not to exceed \$1,800 per annum. The salaries and expenses provided for in this chapter shall be paid monthly. All appointees under the provision of this chapter may be removed by the governor at any time for cause.

SEC. 3. Amendment.—That section 2532 of the Revised Statutes of Nebraska for 1913 be amended to read as follows:

2532. SEC. 7. Reports.—The deputy commissioner shall make a biennial report to the governor on or before the 15th day of December preceding the meeting of the legislature of each biennium for the biennium ending the 30th day of November preceding it. The report shall give a concise statement of the affairs of the department, a full statement of all the receipts and disbursements for the preceding biennium, of the inspections of oils as hereinafter provided, and the action of the department in the matter of the inspection of food, drug, dairy, and oil products. The report shall be printed, published, and distributed in a manner similar to the report required of other State officers. In June, September, and December of each year the deputy commissioner shall furnish to the county clerk of each county of the State a certified list of all foods, food products, liquors, beverages, medicines, and remedies found by analysis to be adulterated, with the name and brand of the articles, the name of the manufacturer, and the name of the injurious adulterant. This list shall at all times be subject to public inspection.

SEC. 5. Repeal.—That said original sections, 2527, 2528, and 2532 of the Revised Statutes of Nebraska for 1913, as heretofore existing, be and the same are hereby repealed.

Meat—Sale of, from Diseased Animals Prohibited. (Chap. 250, Act Apr. 5, 1915.)

SECTION 1. Diseased meat; penalty for selling.—It shall be unlawful for any person to sell or offer for sale the flesh of a diseased animal, whether such animal shall have died of disease or shall have been butchered when in a diseased condition, and any person violating the provisions of this act shall, upon conviction thereof, be fined in any sum not less than \$100 and not more than \$1,000, or be imprisoned in the penitentiary not less than six months or more than five years.

Habit-Forming Drugs—Sale and Dispensing. (Chap. 195, Act Mar. 24, 1915.)

SECTION 1. Cocaine; opium; morphine; sale of, regulated.—It shall be unlawful for any druggist, drug firm, or corporation, or any other person, copartnership, or corporation, to sell, barter, exchange, dispense, or give away any cocaine, alpha or beta eucaine, morphine, or opium, or any salt, compound, or derivative of any of the foregoing substances, or any preparation, product, or compound containing any of the foregoing substances, or any of their salts, compounds, or derivatives, except, upon the written prescription of a duly licensed practicing physician of the State of Nebraska, which prescription shall contain the date when given, the name and address of the person for whom prescribed, and by whom to be used, and be signed by the physician prescribing same and the

address of the physician shall be affixed thereto, and when such a prescription is received to be filled the person filling same shall affix to said prescription his name and address and the date of filling said prescription, and said prescription shall be retained on file within the State of Nebraska, where the same shall have been filled, by the person, firm, copartnership, or corporation filling same, for a period of at least two years, and said prescription shall not be filled more than once, and no copy of it shall be taken by any person, and said original prescription shall at all times be open to the inspection of the prescriber, to the State board of pharmacy, State, county, or city health officers, county attorneys, grand juries, and all officers of the law, and such agents as may be appointed by them, or any of them, for the purpose of making said inspection, and except also that such cocaine, alpha or beta eucaine, morphine, or opium, or any salt, compound, or derivative of any of the foregoing substances, or any preparation, product, or compound containing any of the foregoing substances, or any of their salts, compounds, or derivatives may lawfully be sold at wholesale to a duly licensed and registered pharmacist or druggist, duly licensed practicing physician, duly licensed practicing veterinarian, or duly licensed practicing dentist, upon the written and signed order of such duly licensed and registered pharmacist or druggist, or duly licensed and practicing physician, veterinarian or dentist, in which case the wholesale dealer shall, before delivering any of said articles, make, or cause to be made, in a book kept for the purpose, an entry of the sale thereof, stating the date of sale, quantity sold, name and form in which sold, the name and address of the purchaser, the name and address of the person by whom the entry is made, and the name and address of the person filling the order, and the said book shall be preserved and retained within the State of Nebraska, at the place where said order was filled, for a period of at least two years from the date of the last entry therein, and always be open for inspection by the State board of pharmacy, State, county, and city health officers, county attorneys, grand juries, and all officers of the law, and by agents appointed by them, or any of them, for the purpose of making said inspection.

SEC. 2. *Same; sale by druggists.*—It shall be unlawful for any person, copartnership, or corporation to administer to any person any cocaine, alpha or beta eucaine, morphine, or opium, or any salt, compound, or derivative of any of the foregoing substances, or any preparation, product, or compound containing any of the foregoing substances or any of their salts, compounds, or derivatives, except that such drugs, or any of them, may be administered by any duly licensed practicing physician, by any duly licensed practicing dentist, or duly licensed practicing veterinarian, in the course of his professional practice only to a patient, when necessary for medical purposes, except, however, as prohibited in section 4 of this act, or otherwise prohibited by law.

SEC. 3. *Same; prescriptions.*—The above provisions, contained in sections 1 and 2 of this act, shall not apply to prescriptions, preparations, and remedies containing not more than two grains of opium, or not more than one-fourth grain of morphine, or not more than one-eighth grain of heroin, or not more than one grain of codeine in one fluid ounce, or if solid preparation, in one avoirdupois ounce, or to liniments, ointments, suppositories, or plasters, when said liniments, ointments, suppositories, or plasters do not contain cocaine or any of its salts or derivatives or alpha or beta eucaine or any synthetic substitute for either of them, when plainly labeled "for external use only" and in good faith intended for that purpose.

SEC. 4. *Physicians prescribe how; when.*—It shall be unlawful for any duly licensed practicing physician to prescribe, or for any duly licensed practicing physician, dentist, or veterinarian to administer, in any manner or form, any cocaine, alpha or beta eucaine, morphine, or opium, or any salt, com-

pound, or derivative of any of the foregoing substances, or any preparation, product, or compound containing any of the foregoing substances or any of their salts, compounds, or derivatives, for or to any person addicted to the habitual use of cocaine, alpha or beta eucaine, morphine, or opium, or any salt, compound, or derivative of any of the foregoing substances, or any preparation, product, or compound containing any of the foregoing substances or any of their salts, compounds, or derivatives, except that a reputable and duly licensed practicing physician may personally administer to a patient who is an habitual user of said drugs, or any of them, necessary doses thereof when it has been in good faith determined by two reputable and duly licensed practicing physicians, in consultation, to be absolutely necessary in the medical treatment of said patient, in which case the physician administering said drugs, or any of them, shall make and keep a record in writing of the name and address of the person to whom said drugs, or any of them, were administered, date administered, form and quantity of drug administered, name and address of consulting physician, date and place of consultation, which record shall be retained and preserved within the State of Nebraska, and the county where administered, for a period of at least two years, and shall always be open for inspection by the State board of pharmacy, State, county, and city health officers, county attorneys, grand juries, and all officers of the law, and by agents appointed by them, or any of them, for the purpose of making an inspection, and which record shall be made at the time of each administering of said drugs, or any of them, and a copy of said record shall, within five days after each administering of said drugs, or any of them, as in this section provided, be filed with the county attorney of the county in which said administering took place, by the physician administering said drugs, or any of them, and shall have affixed thereto the signature and address of the administering physician.

SEC. 5. Violations; penalty.—Any person violating any of the provisions or requirements of the foregoing and preceding sections of this act, or any part thereof, shall be guilty of a felony, and for each violation thereof shall be punished, on conviction thereof, by imprisonment in the penitentiary for not less than one year nor more than five years, or by a fine not less than \$100 or more than \$2,000, in the discretion of the court.

SEC. 6. Repeal.—That said section 8607 of the Revised Statutes of Nebraska for 1913 is repealed, and all acts or parts of acts in conflict with this act are hereby repealed.

Dentistry—Regulation of the Practice of. (Chap. 50, Act Apr. 16, 1915.)

SECTION 1. Amendment.—Section 2795, Revised Statutes of Nebraska for the year 1913, is hereby amended to read as follows:

2795. **SEC. 86. Dentist and dentistry; license.**—It shall be unlawful for any person to engage in the practice of dentistry in the State of Nebraska unless such person shall have obtained a license from the State board of health, countersigned by its dental secretaries duly appointed under the provisions of this article.

SEC. 2. Amendment.—Section 2796, Revised Statutes of Nebraska for the year 1913, is hereby amended to read as follows:

2796. **Same; State board of health grant license.**—It shall be the duty of the State board of health to see that the provisions of this act are strictly enforced, to grant the certificates as hereinafter provided, and to be caused to be prosecuted all violations thereof. The State board of health shall appoint five secretaries to serve for the term of five years, of whom one shall be appointed each year in the month of July from a list of five dentists submitted by the Nebraska

State Dental Society at its last annual meeting, said appointments to be made as terms of the present incumbents expire. Such secretaries shall have been actively and legally engaged in the practice of dentistry in the State of Nebraska for at least five years next preceding the date of their appointment, and none of such appointees shall be members of the faculty of any dental college or dental department of any medical college in the State of Nebraska, nor shall have any financial interest in any such college or department. Said secretaries shall hold office for a term of five years, or until their successors are duly appointed or qualified. In case a vacancy occurs in the office of dental secretary the State board of health shall fill such vacancy by appointment, within 30 days after it occurs, the appointee to serve the unexpired term of the secretary whose place becomes vacant.

SEC. 3. *Amendment.*—Section 2797, Revised Statutes of Nebraska for the year 1913, is hereby amended to read as follows:

2797. SEC. 88. *Registration of dentists.*—There shall be an annual registration of every person or persons having a license to practice dentistry within the State, and it shall be the duty of the secretary of the dental secretaries not later than the 1st day of December of each year to prepare and mail to every person having a license to practice dentistry within the State a document to be known as the "annual registration blank," upon which shall be proper space for the indorsement of the name, residence, and location of office of the person to whom the same is sent; and it shall be the duty of every person upon the receipt of said blank to fill in the name, residence, and location of office of said person; and said blank shall be fully completed and returned to the said secretary within 30 days after its receipt, together with the sum of \$1 as an annual registration fee, which is hereby required to be paid; for the failure to comply herewith the person shall, upon conviction, be liable to a fine of not less than \$10 nor more than \$50, to be collected by the State and paid into the county treasury, and the license of such person to practice dentistry may be revoked for failure to register and pay the registration fee as herein provided.

SEC. 4. *Amendment.*—Section 2802, Revised Statutes of Nebraska for the year 1913, is hereby amended to read as follows:

2802. SEC. 33. *Examination.*—The dental secretaries shall examine, at their regular sessions only, all applicants for permanent license who shall furnish satisfactory evidence of having complied with the provisions of the fifth next following section, relating to qualification for examination, and shall recommend the granting of a license to all persons satisfactorily passing such examination, and upon such recommendation the State board of health shall grant a license to practice dentistry in the State of Nebraska, under the signatures of said board and countersigned by said dental secretaries. The examination of applicants shall be elementary and practical in character, but sufficiently thorough to test the fitness of the candidate to practice dentistry. It shall be written in English, and shall include questions on the following subjects: Anatomy, physiology, chemistry, materia medica, therapeutics, metallurgy, histology, pathology, oral surgery, operative and prosthetic dentistry, hygiene, and dental jurisprudence, and such other subjects as are usually found in the curriculum of a dental college. Demonstrations of the applicant's skill in operative and prosthetic dentistry shall also be required. In no case shall any applicant be examined or be given a certificate who is not at least 21 years of age. It shall be the duty of said dental secretaries to give final examinations to all students who may so desire, who have completed two years in a recognized dental college, on the subjects completed in said years; or said dental secretaries may, at their discretion, accept the final examination papers in those subjects completed in freshman

and junior years in lieu of the said final examinations: *Provided*, That no dentist who shall have been regularly engaged in the practice of dentistry in this State prior to January 1, 1905, shall be required to take an examination.

SEC. 5. *Amendment*.—Section 2803, Revised Statutes of Nebraska for the year 1913, is hereby amended to read as follows:

2803. SEC. 94. *Secretaries of board attend infirmary of colleges*.—It shall be the duty of the dental secretaries to cause at least two of their number to be present at the infirmary of each of the dental colleges, schools, or departments, legally conducted in the State of Nebraska, of which the applicant is a graduate and give final and practical examination in operative and prosthetic dentistry.

SEC. 6. *Amendment*.—Section 2804, Revised Statutes of Nebraska for the year 1913, is hereby amended to read as follows:

2804. SEC. 95. *Character of applicant*.—Any member of the board of dental secretaries may inquire of any applicant for examination concerning his character, qualifications, or experience, and may take testimony with respect thereto, from anyone under oath, which he is hereby empowered to administer.

SEC. 7. *Amendment*.—Section 2807, Revised Statutes of Nebraska for the year 1913, is hereby amended to read as follows:

2807. SEC. 98. *Qualifications*.—No person shall be eligible for examination for a license by said dental secretaries unless he shall furnish satisfactory evidence of having graduated from a reputable dental college, and shall present satisfactory evidence of having the preliminary education of 14 Carnegie units, or shall furnish to the dental secretaries a certificate of the State board of dental examiners, or a similar body of some other State of the United States, showing that the applicant has been a licensed practitioner of dentistry in that State for the last five years just previous: *Provided*, This section shall not prevent students from taking the examination above provided at the end of their second year.

SEC. 8. *Amendment*.—Section 2810, Revised Statutes of Nebraska for the year 1913, is hereby amended to read as follows:

2810. SEC. 101. *Fees*.—Every person applying to the State board of health for a license to practice dentistry, at the regular semiannual meeting, shall pay to the treasurer of said dental secretaries a fee of \$20, which shall in no case be refunded. Any person desiring to obtain a license to practice dentistry may take said examination at a special meeting of the board to be called for that purpose, upon the payment of the regular fee herein provided, and in addition thereto all the necessary expenses incident to the conducting of said special examination; and if more than one applicant, the expense of conducting said special examination shall be prorated among the applicants. All students who take the examination in the subjects completed at the end of the second year, as above provided, shall at the time of taking such examination pay a fee of \$10, and when their final examination is taken in all other studies after graduation, shall pay a further fee of \$10, which fee shall in no case be refunded. When an applicant for a license fails to pass an examination, no extra charge or fee shall be demanded for a second examination. Necessary expenses, compensation of said dental secretaries in attendance on meetings and expenses incurred in the prosecution of violations of this article, and the salary of the secretary of the dental secretaries, not to exceed \$250 per year, shall be paid out of the fees and funds provided for in this article. All moneys received for licenses or for annual registration shall constitute a fund as hereinbefore provided and may be expended only on the joint order of the president and secretary of said dental secretaries.

SEC. 9. Amendment.—Section 2815, Revised Statutes of Nebraska for the year 1913, is hereby amended to read as follows:

2815a. SEC. 106. Revoking license.—The proceedings to revoke or suspend any license under the first subdivision in the next preceding section, must be had by the board on the receipt of a certified copy of the record of conviction. All accusations must be in writing, verified by some party familiar with the facts therein charged and three copies thereof must be filed with the secretary of the dental secretaries. Upon receiving the accusations and upon recommendation of the board of dental secretaries, the State board of health, if it deem the charges sufficient, may make an order setting the same for hearing, and requiring the accused to appear and answer at a specified time and place, and the secretary of said dental secretaries shall cause a copy of the order and of the accusation to be served upon the accused at least 10 days before the day appointed in the order, to answer the charges and make his defense thereto, unless for sufficient cause the State board of health assign another day for that purpose. If he do not appear the board may proceed and determine the accusation in his absence. If the accused plead guilty or refuse to answer the charges, or upon a hearing thereof the board shall find them or any of them to be true, it may proceed to a judgment revoking or suspending the license of the accused. The board and the accused may have the benefit of counsel, and the board shall have the power to administer oaths, and take the depositions of witnesses in a manner provided by law in civil cases. Upon the revocation of any license the fact shall be noted upon the records of the board of health and dental secretaries thereof, and the license shall be marked as canceled, upon the date of its revocation. Whenever a license is revoked or suspended as herein provided, and the person whose license is revoked or suspended as herein provided, appeals, said person shall have no right to practice dentistry pending said appeal, and any person practicing dentistry as hereinbefore defined after his license is revoked or suspended during said appeal shall be deemed guilty of a misdemeanor and upon conviction thereof shall be fined not less than \$50 nor more than \$500 or imprisonment of not less than 5 days nor more than 90 days in the county jail, and in addition thereto may be enjoined as hereinafter provided.

2815b. SEC. 106a. Enjoining violators of law from further practice.—Whenever any person is found violating any of the provisions of this act the State board of dental secretaries or any citizen may maintain an action in equity in the name of said State board of dental secretaries or said citizen to perpetually enjoin said person from doing any of the acts above described, said action to be brought in the county in which said acts are claimed to have been committed, and in such action the court or a judge in vacation shall, upon the presentation of a petition therefor alleging the doing of any said act or acts and the filing of a bond to be approved by the court, allow a temporary writ of injunction, upon presentation of a copy of the order revoking or suspending the license if the act consists of a violation of the revocation or suspension, and in all other cases if it shall be made to appear to the satisfaction of the court or judge in the form of an affidavit, deposition, oral testimony, or otherwise, as the claimant may elect, that the acts have been committed, unless the court or judge shall direct the form and manner in which the testimony is to be presented. Three days' notice in writing shall be given the defendant of the hearing of the application, and if then continued at his instance the temporary writ as prayed shall be granted as a matter of course. When an injunction has been granted it shall be binding on the defendant throughout the State, and any violation of its provisions shall be a contempt and prosecuted as hereinafter provided. In cases of the violation of any injunction granted under the provisions of this act the court,

or in vacation the judge thereof, may summarily try and punish the offender. Proceedings may be commenced by filing with the clerk of the court any information under oath setting out the alleged facts constituting said violation upon which the offender shall be arrested. The trial may be had upon affidavits, or either party may demand the production and oral examination of the witnesses if within the jurisdiction of the court. A party found guilty of contempt under the provisions of this section shall be punished by a fine of not less than \$50 nor more than \$500 or by imprisonment in the county jail for not less than 30 days nor more than 6 months, or by both fine and imprisonment. The dental secretaries are hereby authorized to employ special counsel to prosecute the above proceedings and may pay said counsel and all other expenses incident to the prosecution of said suit out of any of the funds provided for in this act.

SEC. 10. *Amendment.*—Section 2118, Revised Statutes of Nebraska for the year 1913, is hereby amended to read as follows:

2118. SEC. 109. *License issue by other States.*—The State board of health, upon the recommendation of the board of dental secretaries, may, without examination, issue a license to practice to any dentist who shall have been in legal practice in some other State or Territory for a period of at least five years upon the certificate of the board of dental secretaries or a like board of the State or Territory in which such dentist was a practitioner, certifying his competency and that he is of good moral character and upon the payment of \$20: *Provided, however,* The State from which any practitioner may come shall have and maintain equal standards of laws regulating the practice of dentistry and recognize exchange certificates issued by the board of dental secretaries of the State of Nebraska: *Provided further,* That said applicant shall be compelled to take a practical satisfactory examination in operative and prosthetic dentistry before the board of dental secretaries before said license shall issue.

SEC. 11. *Amendment.*—Sections 2795, 2796, 2797, 2802, 2803, 2804, 2806, 2807, 2809, 2810, 2815, 2818, and 2819, Revised Statutes of Nebraska for 1913, and all acts or parts of acts in conflict herewith are hereby repealed.

MUNICIPAL ORDINANCES, RULES, AND REGULATIONS PERTAINING TO PUBLIC HEALTH.

FORT SMITH, ARK.

Milk and Milk Products—Production, Care, and Sale. (Ord. 1137, Aug. 25, 1915.)

SECTION 1. Each person desiring to sell milk or cream within the city of Fort Smith shall, before engaging in such business, make application at the office of commissioner No. 2 for a permit for that purpose and shall furnish said commissioner with a certificate in writing giving the number of cows used in the production of such milk or cream and the location of the barns, sheds, stalls, and premises in which said cows are kept, fed, and milked, all duly verified by the affidavit of the applicant. Said certificate shall be accompanied by a verified certificate of some qualified veterinarian approved by the board of health to the effect that he has tested each of said cows with tuberculin for tuberculosis within one year and giving the date and result of such test. It shall be the duty thereupon of said commissioner No. 2, or his assistants, to inspect said sheds, barns, stalls, and premises and to examine and inspect said cows for disease; and if it be ascertained by said commissioner No. 2 or his assistants that said barns, sheds, stalls, and premises are properly constructed and sanitary and that said cows are free from injury or disease, it shall be the duty of said commissioner No. 2 to issue a permit to said applicant to sell milk and cream in the city of Fort Smith for the year ending December 31 thereafter. Said applicant shall immediately notify said commissioner No. 2 in writing when any additional cows are added to his herd, which notification shall be accompanied by a verified certificate of a qualified veterinarian approved by the board of health as above provided. Said commissioner No. 2 or his assistants shall thereupon examine said cows, and if same are healthy they shall be included in applicant's permit.

To cover the cost of inspecting said barns, sheds, stalls, and premises for the period covered by said permit, the applicant, upon being granted said permit, shall pay to the city collector the sum of \$2 for the first 10 cows or under, and 10 cents for each additional cow over 10, and commissioner No. 2 or his assistants shall inspect said sheds, barns, stalls, and premises as often within the period covered by said permit as conditions necessitate, but no further charge is to be made for said inspection: *Provided*, That any applicant to whom a dairy license may have been granted prior to the passage of this ordinance may secure a permit as herein provided for for the period of the license heretofore granted upon compliance with the other provisions of this section without paying the inspection fees above provided.

SEC. 2. Each person who desires to sell or dispose of any milk or cream in any way in the city of Fort Smith, where said milk or cream is not produced from cows owned by him, shall, before engaging in such business, make application at the office of commissioner No. 2 for that purpose, and shall furnish him for each herd or cow from which said applicant gets milk or cream a certificate

in writing from a qualified veterinarian, sworn to and subscribed before any person qualified to administer oaths, showing that said cows producing said milk or cream are free from all injury or disease that would affect the milk, especially any disease that is communicable to man or which produces elevation of systematic temperature, such as tuberculosis (determined by tuberculin test), anthrax, Texas fever, pneumonia, parturient apoplexy (milk fever), malignant catarrh, and all such diseases, and that the veterinarian has examined, entered, and inspected the dairy from which said milk or cream is supplied, and that the barns, sheds, and stalls in which each cow is kept, fed, and milked are properly ventilated, drained, lighted, and cleaned, and that in the dwelling house or houses of the said premise or premises of the persons who milk said cows or prepare said milk or cream for market there is no typhoid fever, tuberculosis, or disease that is likely to be communicated to persons using said milk or cream: *Provided*, That when any person deals in milk or cream which is sold or disposed of to him by a person who has obtained a permit under the first section of this ordinance, as to such milk or cream, a copy of such permit may be presented to commissioner No. 2 and shall be by him accepted in lieu of the veterinarian's certificate required above.

Any person to whom a permit has been issued, as provided in this section, must notify commissioner No. 2 in writing whenever he desires to obtain milk or cream from a cow or cows not included in his permit. Any person obtaining a permit under this section must obtain additional new or fresh certificate or certificates of veterinarian at any time on demand of commissioner No. 2, and upon failure within 10 days after demand in writing from said commissioner No. 2 to furnish said new or fresh certificate, the permit provided for in this ordinance may be forfeited. Commissioner No. 2 shall issue a permit to any applicant who shall comply with the above provision and who shall pay to the city collector the sum of \$2 for the first 10 cows or under and 10 cents for each additional cow or over 10, to cover costs of inspection. Said permit shall be for the year ending December 31 after its issuance: *Provided*, That any applicant to whom milk dealer's license may have been granted prior to the passage of this ordinance may secure the permit herein provided for for the period of the license heretofore granted upon complying with the other provisions of this section, without paying the inspection fees prescribed above.

SEC. 3. The issuance of the permits provided for in sections 1 and 2 by said commissioner No. 2 shall not create a vested right to do business in the city. Commissioner No. 2, subject to the approval of the board of commissioners and after a public hearing, is given the right at any time to revoke same upon the failure or neglect of the party obtaining same to comply with any of the terms, conditions, or provisions of this ordinance.

SEC. 4. Any person who sells or disposes of milk or cream in the city of Fort Smith produced from cows not included in a permit as provided for in this ordinance, or from cows, whether so included or not, which are not kept, fed, and milked in barns, sheds, stalls, or premises included in a permit, as provided for in this ordinance, shall be punished by fine as hereinafter provided.

SEC. 5. No person shall sell milk or cream in this city which is produced from cows which have not been tested within one year prior to such sale, by a qualified veterinarian with tuberculin for tuberculosis.

SEC. 6. All cows tested as provided in section 5 and found to be affected with tuberculosis shall be marked in the ear by the veterinarian making the test with a tag bearing a serial number and the words "Fort Smith."

SEC. 7. If, upon inspection as provided in this ordinance, it is ascertained that any milch cow kept, owned, or used in any dairy, or on the premises of any

dairyman who sells or otherwise disposes of milk or cream in this city, has the disease of tuberculosis, it shall be the duty of said commissioner No. 2 or his assistants to notify the owner: *Provided*, That the owner of any cow so found to have the disease of tuberculosis shall have the right to call a competent veterinarian, who, together with said commissioner No. 2, shall select another veterinarian and the three shall reexamine said cow or cows, and if a majority of these three find that said cow or cows is or are so diseased, the same shall be disposed of as hereinafter provided.

SEC. 8. It shall be the duty of the owner upon receiving notice from said commissioner No. 2 that any cow belonging to him and used in his dairy, or kept on his premises, is diseased with tuberculosis, to immediately stop using the milk and cream from said cow and either kill or quarantine her, and keep her quarantined until said animal shall either be killed or found nontuberculous.

SEC. 9. If any owner of a dairy shall fail to keep or quarantine a tuberculous cow upon receipt of notice from commissioner No. 2 or his assistants, or, after receiving said notice, sells or offers for sale within this city any milk or cream produced from said cow, or from cows which are fed or milked in any of the barns, sheds, stalls, premises, or pastures in which said tuberculous cow or cows are kept or fed, such owner shall be punished as hereinafter provided, and the permit of said owner may be revoked by commissioner No. 2.

SEC. 10. Upon disposing of any diseased cow, the owner shall at once notify commissioner No. 2 in writing what dispositions has been made of said cow.

SEC. 11. It shall be unlawful to sell or offer for sale, within this city milk or cream from cows suffering from injury or disease which would affect the milk or cream, especially diseases which are communicable to man, or produce elevation of systemic temperature, such as tuberculosis, anthrax, Texas fever, pneumonia, paturient apoplexy (milk fever), malignant catarrh, and all such diseases.

SEC. 12. Commissioner No. 2 or his assistants shall have the right at any time to enter, examine, and inspect any dairy, the owner of which sells or in any manner disposes of milk or cream in the city of Fort Smith, and to examine, inspect, and test for disease any cow connected with or belonging to the owner or proprietor of such dairy, and to take samples of milk or cream for the purpose of testing same. For any interference with or hindrance of the said commissioner No. 2 or his assistants, by the owner, proprietor, or agents of said dairy, the permit provided for by this ordinance may be forfeited; any person hindering or preventing said commissioner No. 2 or his assistants from making such inspection shall be punished as hereinafter provided.

SEC. 13. Commissioner No. 2 or his assistants shall have the right to enter and examine any place within this city where milk or cream is sold, or offered for sale, and to inspect and examine at any time and any place any of said milk or cream and to take samples of milk or cream for the purpose of testing same, and said commissioner No. 2 and his assistants are hereby given police power and authority.

SEC. 14. Dairy cows producing milk or cream for the Fort Smith market shall not be fed distillery waste, "swill," or any substance in a state of putrefaction or rottenness, or any substance that is unwholesome, or that will in any way affect the healthfulness of their milk or cream; and any person who sells milk or cream in the city of Fort Smith produced from cows fed on the above described substances shall be punished as hereinafter provided.

SEC. 15. Each cow used in the production of milk or cream for sale or disposal in the city of Fort Smith shall be allowed free movement in the open air at least six hours each day, and the barns, sheds, stalls, or premises in which

the cows are kept, fed, and milked shall be properly drained, lighted, ventilated, and cleaned, as per instructions of commissioner No. 2 or his assistants.

SEC. 16. No person shall sell or offer for sale within this city any milk which contains more than 87.5 per cent water or less than 3 per cent of butter fat, or the specific gravity of which, at 60° F., is less than 1.026 or more than 1.033. The water shall be determined by evaporation at 100° C., the fat by extraction from total solids in Soxhlet apparatus, and the nonfat solids by the difference. All milk of lower grade and quality than that specified by this section shall be taken and condemned by commissioner No. 2 or his assistants, and the vendor thereof punished by fine as hereinafter provided.

SEC. 17. It shall be unlawful for any person to sell or dispose of in any way, or to have in custody with the intention of selling or exposing or offering for sale as "pure" milk, any milk from which the cream, or any part thereof has been removed, and all such milk from which the cream, or any part thereof, has been removed, thereby reducing percentage of butter fat below 3 per cent, shall be plainly labeled and marked "skimmed milk."

SEC. 18. No person shall sell or offer for sale within this city any cream which contains less than 18 per cent of butter fat, to be determined as provided in section 16, unless said cream is plainly labeled "less than 18 per cent butter fat," and all cream of lower grade and quality not so labeled shall be taken and condemned by commissioner No. 2 or his assistants.

SEC. 19. It shall be unlawful to sell or offer for sale within this city any butter that is not made from milk or cream, and said butter shall be free from all chemicals or adulterations, other than salt or harmless coloring matter of the kind and amount allowed by the pure food and drug acts of the United States of America, and said butter shall comply in all respects with the requirements of said pure food and drug acts of the United States of America.

SEC. 20. Skimmed milk, or separated milk, that is sold or offered for sale within this city shall contain not less than 9 per cent of milk solids, exclusive of butter fat, to be determined as provided in section 16, and shall be plainly labeled "skimmed milk"; and all buttermilk shall contain not less than 8.5 per cent of milk solids, exclusive of butter fat, to be determined as provided in section 16, and all such milk of lower grade and quality than specified in this section shall be taken and condemned by commissioner No. 2 or his assistants.

SEC. 21. It shall be unlawful to add to milk or cream intended for sale in this city any chalk, borax, salicylate of soda, or any preservative of any kind whatsoever, or ice or water, or any substance or fluid, and it shall be unlawful to sell or offer for sale any milk or cream which has been added to or adulterated as aforesaid, or any impure, adulterated, or unwholesome milk or cream, and commissioner No. 2 shall condemn and destroy such milk or cream.

SEC. 22. Dairymen who shall desire to put a milk of exceptional excellence on the market may be allowed to use the words "certified milk" on their labels, provided they have received from commissioner No. 2 a certificate of the unusual excellence of said milk. Commissioner No. 2 shall in no instance give such certificate unless the conditions respecting such milk hereinafter specified are found to exist. Under no other circumstances shall such or any other label likely to mislead the purchaser appear upon packages containing milk.

Certified milk shall not contain over 20,000 bacteria per cubic centimeter at the time of delivery to the customer and shall at no time contain pathogenic germs. The method of counting bacteria shall be as follows:

Cultures to be grown upon glycerine-agar media, to be incubated not less than 24 nor longer than 36 hours, at a temperature not less than 90° nor more than 100° F.

Certified milk shall contain 4 per cent of butter fat and other customary ingredients in proportion, to be determined as provided in section 16. Said milk shall not be delivered to customers at a higher temperature than 50° F., and shall always be delivered in sealed packages.

Barn and milk house at which such milk is produced shall be provided with concrete floor laid so as to be water-tight, and there shall be arrangements for water under pressure to flush said barn and milk house. There shall be arrangements for steam sterilization of all cans and bottles, and the barn and milk house shall be flushed three times a week, and the bottles and cans shall be sterilized each day before use: *Provided*, That the results of chemical and bacteriological examination made and certified by the person designated by the city to make such examination shall be considered prima facie correct: *And provided further*, That the certificate provided for in this section may be revoked by commissioner No. 2 at any time when any of the requirements of the above section are not complied with.

SEC. 23. Any person conducting a dairy or dairy depot, restaurant, hotel, or other place in which milk is sold or otherwise disposed of in this city shall at all times maintain such place in a strictly sanitary condition, to be open for inspection at all times during business hours. All ice boxes and refrigerators in which milk is kept shall be and remain in a sanitary condition, being scrubbed at least once in each week, said boxes or refrigerators to be drained according to the direction of commissioner No. 2 or his assistants. There shall be no closets, hogpens, or quarters for animals or fowls closer than 100 feet from such dairy or dairy depot or place where milk is sold: *Provided*, This shall not apply to a water-closet properly connected with the city sewage system and maintained in a clean, sanitary condition.

Any person conducting a dairy, dairy depot, hotel, restaurant, or other such place shall report, within 24 hours, to the city physician any illness of any kind whatsoever occurring in his family or among his employees, or of any person connected with the business in any way, giving name and address of the attending physician. The city physician shall have the power to suspend temporarily the business of any such place if he deems such action necessary to protect the public health against infection from such case of illness.

SEC. 24. In addition to the rules and regulations hereinbefore set out, all persons selling or offering for sale milk or cream in this city shall observe the following requirements:

First. No milk or cream shall be bottled except at a dairy or properly equipped dairy depot, and all milk or cream receptacles when not in use shall be kept free from dirt and flies.

Second. No milk or cream shall be strained in a barn or any other place where the milk will be liable to become contaminated.

Third. Every dairy shall be provided with an aerator of approved type, over which milk and cream shall be poured as it is strained, the said aerator to be filled with cold water or ice.

Fourth. Dairy cattle shall be prohibited from running on pastures that contain streams, ponds, or other water found contaminated with sewage.

Fifth. Every cow shall have the teats and udder well cleaned before each milking with clean damp cloth, and all milkers shall wear at each milking overalls or clothing that are clean; each milker shall clean his or her hands thoroughly with soap and water immediately before milking.

Sixth. No milk shall be sold which contains more than 1,000,000 bacteria per cubic centimeter at the time of delivery to the customer; the number of bacteria to be determined as provided in section 22. Dairy men whose milk shall be found

continually contaminated with pathogenic germs shall be suspended from selling milk in the city, and not relicensed to sell milk without permission of commissioner No. 2. No pasteurized milk shall be sold which, before pasteurization contained more than 1,000,000 bacteria per cubic centimeter (determined as in section 22). Pasteurized milk shall not be repasturized for the purpose of lowering the number of bacteria or for preserving purposes, but shall be kept at a temperature of not more than 65° F. after leaving the pasteurizer until reaching its destination.

Seventh. All dairy barns, if floored, shall be floored with concrete.

Eighth. The interior of all dairy barns shall be whitewashed twice each year or painted once each year.

Ninth. Every dairyman shall be required to keep his barn and lot where same is located free from manure, droppings from cows being gathered once daily, piled in an inclosure not closer than 100 feet to the dairy barn, milk house, or source of water supply, and said lot and barn shall also be kept free from stagnant water and other objectionable material. All fresh manure placed on the above-mentioned heap to be properly limed or treated with borax. All wells, springs, or cisterns supplying water to the cows shall be so constructed or situated as to satisfy commissioner No. 2 or his assistants that they are reasonably free from any source of possible infection. Each dairy farm shall be provided with a water-closet or privy of sanitary type, approved by commissioner No. 2 or his assistants, in which the discharge shall be thoroughly protected from flies. It shall be unlawful for any human excrement to be deposited on such premises in such manner as to make possible the contamination of the water supply or milk.

Tenth. Each dairy shall be provided with a properly constructed milk house, provided with wire screens for doors and windows, and ample arrangements for heating water, and shall not be used for any other purpose than handling milk or milk products. Said house shall have a properly constructed sink, at which bottles, cans, and other utensils used in handling milk may be washed, and shall be provided with a drainpipe carrying all waste water at least 100 feet from the milk house, water supply, and barn. Said milk house shall not be connected by door or passageway with any stall or stable.

Sec. 25. It shall be unlawful for any retail dairyman, dairy depot, or merchant to sell milk, when delivering the same in wagons over the city, in any way whatsoever except in glass bottles, well and securely stoppered when it leaves the dairy or dairy depot, and not removed from them until delivered: *Provided*, That this section shall not apply to restaurants, hotels, hospitals, and bakeries so far as their purchasing of milk in bulk is concerned: *Provided further*, That this section shall not apply where milk is being delivered to houses where there are infectious diseases, and all persons receiving milk on any such premises shall furnish proper receptacles in which the milk shall be poured.

Sec. 27. The provisions of this ordinance shall not apply to persons owning only one cow who sell the milk or cream produced from said cow direct to the consumer, and none of the provisions of this ordinance shall be construed as applying to evaporated or condensed milk or cream.

Sec. 28. That wherever the words "commissioner No. 2 or his assistants" are used herein the word "assistants," wherever the context permits, shall be deemed to include the city physician and health officer, all sanitary policemen or patrolmen, and such other persons as the board of commissioners shall assign to commissioner No. 2 to assist in the enforcement of this ordinance.

Sec. 29. Every person violating any of the provisions of this ordinance shall be deemed guilty of a misdemeanor, and upon conviction in police court shall be

fined not less than \$10 nor more than \$50 for each offense, and the license of such convicted person may be revoked.

SEC. 30. This ordinance, being necessary for the immediate preservation of the public peace, health, and safety, shall be in full force and effect from and after its passage and publication, and all ordinances and parts of ordinances in conflict herewith are hereby repealed.

GREENWICH, CONN.

Board of Health—Appointment, Powers, and Duties. (Act Conn. Leg., May 17, 1915.)

SECTION 1. The board of estimate and taxation, elected pursuant to the provisions of an act approved July 20, 1909, within 60 days after the passage of this act, shall appoint four citizens of the town of Greenwich, one of whom shall be a physician and one a lawyer, and not more than two of whom shall belong to the same political party, who, with the town health officer, ex officio, shall constitute a board of health for said town. Such four members shall serve without compensation, and shall be appointed, two for one year and two for two years, as designated by said board of estimate and taxation, but their successors shall be appointed for terms of two years, except in case of an appointment to fill a vacancy, which appointment shall be only for the unexpired portion of the term. Such board of estimate and taxation may, at any time, for cause, and after notice and opportunity to be heard, remove one or more of such four members so appointed, and shall appoint a successor in every case of vacancy.

SEC. 2. Said board of health shall exercise authority necessary for the promotion, protection, and preservation of the health of the inhabitants of said town. Said board of health shall have power to make, alter, repeal, and enforce ordinances, by-laws, and regulations for the following purposes:

To provide for the health of the town; to require and regulate inspection of schools and school children, as deemed necessary by such board for the protection of the health of such children; to supervise, control, and regulate the work of midwives, whether paid or not; to preserve the purity of all sources of water supply for said town and prevent pollution thereof; to define as nuisances anything detrimental or which in the opinion of such board may become detrimental to the public health, and to prevent and summarily abate all nuisances; to regulate the location, construction, and use of plumbing, wells, sinks, cesspools, pigpens, drains, sewers, and privies, and such other things as menace health in said town; to provide, by contract or otherwise, and to grant licenses, for the collection and disposal of garbage, ashes, sewage, and refuse in said town; to regulate the carriage of any offensive substance through the roads and streets within the limits of said town; to regulate, by inspection, licensing, or otherwise, the conduct within said town of any business affecting the public health or safety, or unduly annoying to the public, including plumbing, bakeries, barber shops, the sale of milk and other food, and any other business affecting public health, and to prohibit the sale or compel the destruction of milk or food when deemed by said board detrimental to public health; to prevent the deposit of refuse or filth in any stream, highway, or elsewhere. Any person violating any such ordinance, by-law, or regulation shall be fined not more than \$100 or imprisoned not more than 30 days, or both.

SEC. 3. Said board of health shall, in the manner and at the times provided in section 5 of the act creating a board of estimate and taxation, ap-

proved July 20, 1909, furnished to said board of estimate and taxation annual estimates of the amount of money which said board of health and health officer will require in the administration of all laws, ordinances, by-laws, regulations, and orders relating to the public health, and for the necessary and proper promotion, protection, and preservation of the health of said town. Provision for such requirements shall be made in the same manner and at the same times as are provided in sections 6, 7, 8, 9, 10, and 11 of said act.

SEC. 4. The town health officer shall exercise his powers subject to the direction of said board of health.

SEC. 5. Notice of any ordinance, by-law, regulation, or order made under the provisions of this act may be given by serving a copy thereof upon any person affected or by publishing a copy in a newspaper published in said town or by posting a copy on each signpost three days before the same shall take effect. Such ordinances, by-laws, and regulations, with an indorsement thereon signed by the town health officer that they have been published or posted, as the case may be, as required by law, shall be recorded in the office of the town clerk of said town and shall remain in force until altered or repealed. A copy of any such ordinance, by-law, or regulation certified by the town health officer shall be prima facie evidence that it has been legally made. Sections 2529, 2530, and 2592 of the general statutes shall not apply to the board of health or to the town health officer of said town.

SEC. 6. The jurisdiction of the board of health and health officer of said town, in the exercise of the powers herein conferred upon them, shall be coextensive with the limits of said town, including the borough of Greenwich; and said borough or any board or officer thereof, shall not, anything in the charter of said borough notwithstanding, make or enforce any ordinance, by-law, rule, regulation, or order, or do any act, inconsistent with any provision of this act or with any ordinance, by-law, rule, regulation, or order of said board of health or health officer thereof made under the authority of this act. Without in any way limiting the terms herein referred to, the term "public health" as used in this act shall include public comfort and the term "nuisance" as used in this act shall include anything which detrimentally affects the public comfort.

HOBOKEN, N. J.

Stables and Disposal of Manure. (Ord. June 16, 1915.)

SECTION 1. Every owner, agent, tenant, lessee, or occupant of any stall, stable, building, or apartment in which one or more horses, mules, or other animals are kept, or any place in which any manure or other solid or liquid discharge or excrement of animals may be deposited, collected, or accumulated, shall at all times keep or cause to be kept such stalls, stables, buildings, or apartments, and the drainage, yard, and appurtenances thereof in a cleanly, healthy, and wholesome condition, and no offensive, nauseous, or obnoxious odors shall be allowed to escape therefrom.

SEC. 2. Every stall, stable, building, or apartment in which one or more horses, mules, or other animals are kept shall be provided with an underground and properly covered vault, bin, or pit for the reception of manure, in which said manure shall be kept inclosed preparatory to being removed from said stable, building, or apartment. Said vault, bin, or pit shall be located as far remote as possible from any dwelling (except the building used in connection therewith), church, school, street, or public avenue. Every such vault, bin, or pit shall be water-tight, except that it may be constructed in such a manner as to provide for connection with the public sewer or to permit being flushed, emptied,

or cleaned. No such vault, bin, or pit shall be constructed or used for holding manure the bottom of which is below the surface of the surrounding earth unless it be constructed of substantial cement or masonry or connected with the public sewer.

SEC. 3. Every stall, stable, or building or apartment in which one or more horses, mules, or other animals are kept must be provided with a water-tight floor in each stall for a distance of 4 feet to the rear thereof, laid with such a grade as will cause all fluids that fall thereon to immediately flow to the public sewer, and if said stall, stable, building, or apartment is not connected with the public sewer, then to that part of the premises from which said fluid may be immediately removed.

SEC. 4. All manure vaults, bins, or pits attached to all stables, buildings, or apartments in which more than one horse, mule, or other animal is kept shall be emptied twice every week between the first day of June and the thirty-first day of October, inclusive, and the same shall be emptied at least once a week between the first day of November and the thirty-first day of May of the succeeding year.

SEC. 5. No manure shall be removed from any vault, pit, or bin, or any other place where said manure has accumulated, and deposited in any place within the limits of the city of Hoboken without a permit from the board of health. When said permit is issued the person removing manure must be governed by the provisions thereof. Nothing in this section shall apply to the distribution and placing of manure on private lawns and parks if said manure is thoroughly decomposed so that its distribution will give rise to no offensive or obnoxious odors.

SEC. 6. Every person using any building or part of a building within the limits of the city of Hoboken as a stable for one or more horses, mules, cows, or other animals shall report same to the board of health within 30 days after this ordinance takes effect. Said statement must be in writing and must include the name of the owner of the building, the number of animals, whether horses, mules, or cows, the location of the stable and the name of the owner of the animals stabled therein. The provisions of this section shall apply to any person who shall occupy any building or part of any building for the aforesaid purpose of stabling horses, mules, or cows, and said person shall report the aforementioned facts to the board of health within 5 days after the beginning of the occupancy of said building or part of building for the aforesaid purpose of stabling horses, mules, or cows.

SEC. 7. No hay, straw, or other substance which has been used as bedding for animals shall be placed or dried upon any street or sidewalk or roof of any building, nor shall any straw, hay, or other substance or the contents of any mattress or bed be deposited or burned, nor shall accumulations thereof be made within 200 feet of any street or dwelling without a permit from the board of health.

SEC. 8. No person owning, occupying, or having charge of any stable or other premises shall keep or allow thereon or therein any animal or dog which shall by noise disturb the quiet or repose of anyone therein or in the vicinity.

SEC. 9. Any person violating any of the provisions of this ordinance shall, upon conviction thereof, be subject to a fine of not less than \$10 nor more than \$50.

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